Enclosure 1

Preconstruction Screening Examples

Activity: Installation of Circulation Water System: The Circulating Water System (CWS) and the cooling tower provide a heat sink for the waste heat exhausted from the steam turbine. Buried portions of this system will be installed during preconstruction and LWA activities including the cooling tower foundations, piping, and electrical I&C duct banks.

1.0 Does the installation activity include an SSC or elements of an SSC that will be a permanent part of the operating plant

☒ **If** YES, **Then** complete Step 3.0

☐ **If** NO, **Then** complete Step 2.0

2.0 Is the activity preconstruction as defined in 10CFR50.10(a), COL/ESP-ISG-004, its supplement, and RG?

Can the activity be considered any of the following?

(a) Changes for temporary use of the land for public recreational purposes;

(b) Site exploration, including necessary borings to determine foundation conditions or other preconstruction monitoring to establish background information related to the suitability of the site, the environmental impacts of construction or operation, or the protection of environmental values;

(c) Preparation of a site for construction of a facility, including clearing of the site, grading, installation of drainage, erosion and other environmental mitigation measures, and construction of temporary roads and borrow areas;

(d) Erection of fences and other access control measures;

(e) Excavation;

(f) Erection of support buildings (such as, construction equipment storage sheds, warehouse and shop facilities, utilities, concrete mixing plants, docking and unloading facilities, and office buildings) for use in connection with the construction of the facility;

(g) Building of service facilities, such as paved roads, parking lots, railroad spurs, exterior utility and lighting systems, potable water systems, sanitary sewerage treatment facilities, and transmission lines;

(h) Procurement or fabrication of components or portions of the proposed facility occurring at other than the final, in-place location at the facility; or

(i) Manufacture of a nuclear power reactor under a manufacturing license under Subpart F, "Manufacturing Licenses," of 10 CFR Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants," to be installed at the proposed site and to be part of the proposed facility.

☐ **If** YES, **Then** complete Step 2.1

☐ **If** NO, **Then** complete Step 3.0

2.1 Is the activity taking place within the necessary excavation?

☐ **If** YES, **Then** complete Step 2.2

☐ **If** NO, **Then** activity is considered preconstruction. Complete conclusion Step 9.0.

2.2 If the activity is taking place in the necessary excavation, is the activity permanent?

☐ **If** YES, **Then** an LWA or COL is required for installation or construction of the SSCs. Complete conclusion Step 9.0.

☐ **If** NO, **Then** activity is considered preconstruction. Complete conclusion Step 9.0.

3.0 Identify the system and preconstruction structures and components (SSC).

Circulating Water System (CWS)

The Circulating Water System (CWS) and the cooling tower provide a heat sink for the waste heat exhausted from the steam turbine. Additional cooling is supplied from the CWS through a tap in the main supply header for the TCS heat exchangers and the condenser vacuum pump seal water heat exchangers. The CWS consists of three 33-1/3-percent-capacity circulating water pumps, one hyperbolic natural draft cooling tower (NDCT), and associated piping to and from the Turbine Building, valves, and instrumentation. Makeup water to the CWS is provided by the raw water system (RWS) river water subsystem. In addition, water chemistry is controlled by the turbine island chemical feed system (CFS).

The cooling tower is located approximately 1000 ft. south of the plant and has a basin water level of approximately 219 ft. MSL. Should a cooling tower basin wall break, little, if any, water would reach the plant because of the remote location of the tower and the grading of the site. The height of the cooling tower is approximately 600 ft., however because of its remote location, there is no potential for the cooling tower to fall and damage safety related structures or components. Because of the remote location and the height of the cooling towers the plumes will dissipate before they will affect any plant ventilation intake or the plant switchyard. Also, because of the height of cooling tower it is unlikely there will be fogging near the plant as a result of the cooling tower plume.

The underground portions of the CWS piping are constructed of pre-stressed concrete pressure piping. The remainder of the piping is carbon steel and is coated internally with a corrosion-resistant compound. Condenser water box drains allow the condenser to be drained to the cooling tower basin. Piping includes the expansion joints, butterfly valves, condenser water boxes, and tube bundles. The piping design pressure of the CWS is 115 psig.

The CWS duct bank houses the power cables and I&C control cables that supply the CWS pumps and certain appurtenances at the CWS pump structure.

4.0 Identify the system, structure and component (SSC) design basis.

Safety Design Basis

The circulating water system (CWS) serves no safety-related function and therefore has no nuclear safety design basis.

Power Generation Design Basis

The CWS supplies cooling water to remove heat from the main condensers. The CWS also supplies cooling water to the turbine building closed cooling water system (TCS) heat exchangers and the condenser vacuum pump seal water heat exchangers under varying conditions of power plant loading and design weather conditions.

The Circulating Water System (CWS) system components provide the water system inventory as well as the heat sink for the turbine cycle. Loss of CWS would result in a loss of condenser vacuum. The loss of condenser vacuum would lead to a turbine trip.

A review of WCAP-15985 Revision 2, "AP 1000 Implementation of the Regulatory Treatment of Nonsafety-Related Systems Process," evaluated Reactor trip initiating event systems including loss of main feed water initiating event. The conclusion of this evaluation is as follows:

> Therefore, from the perspective of initiating event frequencies for the baseline PRA, the evaluation for these two initiators identify no nonsafety-related SSCs where additional regulatory oversight would significantly reduce the associated initiating event frequencies, the CDF, and the LRF. No proposed regulatory oversight recommendations have been identified for these nonsafety-related SSCs.

The Circulating Water System cooling tower foundation, buried piping, and duct banks do not perform any safety related or supplemental safety related functions, and thus do not have a reasonable nexus to the radiological health and safety of the public or the common defense and security within the meaning of the LWA rule.

Failure of the identified non-safety related passive structures and components are not plausible as an initiating event for a reactor scram or safety system actuation. The CWS structures planned for installation as preconstruction activities do not have a reasonable nexus to safety.

5.0 Identify for the Preconstruction Structures and Components the Seismic Category, Equipment/ SSC Class, Function and Active Passive determination in the table below:
Note: Refer to DCD Tables 3.2-1, 3.2-2, and 3.2-3.

Preconstruction Component or Structure	Seismic Cat.	Equip/SSC Class	Function	Active or Passive
Cooling Tower Foundations	NS	E	a structure to facilitate cooling	Passive
Buried CWS piping between the Turbine building and the CWS cooling towers	NS	E	a flow path for CWS water	Passive
Buried electrical / I&C duct banks to the CWS pump structure	NS	E	a structure to house power and I&C cables	Passive

Class E – This class is used for nonsafety-related structures, systems, and components that do not have a specialized industry standard or classification.

5.1 Determine construction uses for the SC: None

Proceed to step 6.0 and perform a preliminary screening.

6.0 Is the system Safety Related or designed to satisfy the requirements of 10 CFR 73, 10 CFR 50.48 or Criterion 3 of 10 CFR 50 Appendix A?

☐ **If** YES, **Then** an LWA or COL is required for installation or construction of the SSCs. Complete Step 9.0, Conclusion.

☒ **If** NO, **Then** proceed to Step 7.0.

7.0 Does the System have the potential to cause a reactor scram or actuation of a safety system?

☒ **If** YES, **Then** perform an operating experience review for the preconstruction structure and components and document below.

A. Evaluate related operating experience.

A review of licensee event reports for current operating reactors did not identify occurrences of failures of the SSCs identified above that resulted in plant scrams or safety system actuations. Failure of the identified non-safety related passive structures and components are not credible as an initiating event for a reactor scram or safety system actuation.

B. Proceed with preconstruction screening Step 8.0.

☐ **If** NO, **Then** proceed with preconstruction screening Step 8.0.

8.0 10 CFR 50.10(a)1 Preconstruction Screening

Activities constituting construction are the driving of piles, subsurface preparation, placement of backfill, concrete or in-place assembly, erection, fabrication, or testing which are for:

(i) Safety-related structures, systems, or components of a facility, as defined in 10 CFR 50.2;

A review of the AP1000 DCD, VEGP COLA, the Vogtle Units 3 and 4 Circulating Water System (CWS) System Specification Document, and WCAP-15985 was performed. This review determined that the CWS buried piping, cooling tower foundation and buried duct bank are not safety-related. Criterion not met.

(ii) SSCs relied upon to mitigate accidents or transients or used in plant emergency operating procedures;

A review of the AP1000 DCD, VEGP COLA, the Vogtle Units 3 and 4 Circulating Water System (CWS) System Specification Document, and WCAP-15985 was performed. This review determined that the CWS buried piping, cooling tower foundation and buried duct bank are not relied upon to mitigate accidents or transients In addition, a review of the current AP 1000 EOP revisions, referenced in section 10.0, was performed and these preconstruction items are not relied upon to meet any success criteria. Criterion not met.

(iii) SSCs whose failure could prevent safety-related SSCs from fulfilling their safety-related function;

A review of the AP1000 DCD, VEGP COLA, the Vogtle Units 3 and 4 Circulating Water System (CWS) System Specification Document, and WCAP-15985 was performed. This review determined that the failure of the CWS buried piping, cooling tower foundation or buried duct bank are not credible initiating events that could prevent the function of a safety related structure, system or component. Criterion not met.

(iv) SSCs whose failure could cause a reactor scram or actuation of a safety-related system;

A review of the AP1000 DCD, VEGP COLA, the Vogtle Units 3 and 4 Circulating Water System (CWS) System Specification Document, and WCAP-15985 was performed. This review determined that the failure of the CWS buried piping, cooling tower foundation nor buried duct bank are not credible as an initiating event for a reactor scram or safety system actuation. Criterion not met.

(v) SSCs necessary to comply with 10 CFR Part 73, "Physical Protection of Plants and Materials;"

A review of the AP1000 DCD, VEGP COLA including the Physical Security Plan and the Vogtle Units 3 and 4 Circulating Water System (CWS) System Specification Document, WCAP-15985, and the drawings identified in 10.0 below was performed. This review determined that the CWS preconstruction structures and components, to include the cooling towers, buried piping and buried duct banks, do not perform any function associated with physical security requirements contained in 10 CFR 73.55. Permanent design of the CWS must include appropriate physical barriers to preclude use of the system as an underground pathway to circumvent the site protected area (PA) boundary. Criterion not met.

(vi) SSCs necessary to comply with 10 CFR 50.48 "Fire Protection" and criterion 3, Protection and Reactivity Control Systems," of 10 CFR Part 50, Appendix A, "General Design Criteria for Nuclear Power Plants;" and

A review of the AP1000 DCD, VEGP COLA, the Vogtle Units 3 and 4 Circulating Water System (CWS) System Specification Document, and WCAP-15985 was performed. This review determined that the CWS buried piping, cooling tower foundation and buried duct bank are not necessary to meet fire protection requirements for the power plant or for protection and reactivity control systems function. Criterion not met.

(vii) Onsite emergency facilities, that is, technical support and operations support centers, necessary to comply with 10 CFR 50.47, "Emergency Plans," and 10 CFR Part 50, Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities."

A review of the AP1000 DCD, VEGP COLA including Emergency Plan (EP), the Vogtle Units 3 and 4 Circulating Water System (CWS) System Specification Document, and WCAP-15985 was performed. This review determined that the technical support center is located in the Communications Support Center building situated between Units 2 and 3. The operations support centers are located in the Control Support Areas of Units 3 and 4. The CWS buried piping, cooling tower foundation and buried duct bank are not used by the technical support center or the operations support centers. The CWS buried piping, cooling tower foundation and buried duct bank are not relied on in the EP nor subject to any EP Inspection, Analyses, Testing and Acceptance Criteria (ITAAC). Therefore, criterion vii is not met.

If any of the 10 CFR 50.10(a)1 screening criteria have been met, Then the installation of the structure and/or components require an LWA or COL. Proceed to Step 9.0.

9.0 Conclusion: Complete summary statement for conclusion

This evaluation demonstrates that the CWS buried piping, cooling tower foundation and buried duct bank are not included in the definition of construction, and NRC approval via an LWA or COL is not required to conduct activities related to its erection.

10.0 References

10.1 AP1000 DCD, Rev. 16

10.2 VEGP 3 & 4 COLA, Rev. 0

10.3 WCAP-15985 Revision 2, "AP 1000 Implementation of the Regulatory Treatment of Nonsafety-Related Systems Process," dated August 2003

10.4 SV0-CWS-M3-001, Circulating Water System – System Specification Document

10.5 SV3-CWS-M6-001, Circulating Water System – P&ID

10.6 SV4-CWS-M6-001, Circulating Water System – P&ID

10.7 SV0-CWS-P6-001, Circulating Water System – Underground Piping Layout

10.8 Westinghouse Emergency Operating Procedures APP-GW-GJP-201 through APP-GW-GJP-236

10.9 10CFR50.10

10.10 COL/ESP-ISG-004, its supplement

10.11 RG 1.206 (When amended)

11.0 Review and Approval

	Activity Performed	Name (Print and Sign)	Date
1	Preparer		
2	Engineering Review		
3	Emergency Operating Procedures Review		
4	Emergency Planning Review		
5	Security Review		
6	Licensing Review		
7	Management Approval		

Activity: Installation of Construction Communications System: The Construction Communications System is a distribution system that facilitates communications at the construction site and plant property and will be used to support the construction infrastructure**.** Buried portions of this system will be installed during site preconstruction and LWA activities including the underground communication wiring and conduit.

1.0 Does the installation activity include an SSC or elements of an SSC that will be a permanent part of the operating plant

☒ **If** YES, **Then** complete Step 3.0

☐ **If** NO, **Then** complete Step 2.0

2.0 Is the activity preconstruction as defined in 10CFR50.10(a), COL/ESP-ISG-004, its supplement, and RG?

Can the activity be considered any of the following?

(a) Changes for temporary use of the land for public recreational purposes;

(b) Site exploration, including necessary borings to determine foundation conditions or other preconstruction monitoring to establish background information related to the suitability of the site, the environmental impacts of construction or operation, or the protection of environmental values;

(c) Preparation of a site for construction of a facility, including clearing of the site, grading, installation of drainage, erosion and other environmental mitigation measures, and construction of temporary roads and borrow areas;

(d) Erection of fences and other access control measures;

(e) Excavation;

(f) Erection of support buildings (such as, construction equipment storage sheds, warehouse and shop facilities, utilities, concrete mixing plants, docking and unloading facilities, and office buildings) for use in connection with the construction of the facility;

(g) Building of service facilities, such as paved roads, parking lots, railroad spurs, exterior utility and lighting systems, potable water systems, sanitary sewerage treatment facilities, and transmission lines;

(h) Procurement or fabrication of components or portions of the proposed facility occurring at other than the final, in-place location at the facility; or

(i) Manufacture of a nuclear power reactor under a manufacturing license under Subpart F, “Manufacturing Licenses,” of 10 CFR Part 52, “Licenses, Certifications, and Approvals for Nuclear Power Plants,” to be installed at the proposed site and to be part of the proposed facility.

☐ **If** YES, **Then** complete Step 2.1

☐ **If** NO, **Then** complete Step 3.0

2.1 Is the activity taking place within the necessary excavation?

☐ **If** YES, **Then** complete Step 2.2

☐ **If** NO, **Then** activity is considered preconstruction. Complete conclusion Step 9.0.

2.2 If the activity is taking place in the necessary excavation, is the activity permanent?

☐ **If** YES, **Then** an LWA or COL is required for installation or construction of the SSCs. Complete conclusion Step 9.0.

☐ **If** NO, **Then** activity is considered preconstruction. Complete conclusion Step 9.0.

3.0 Identify the system and preconstruction structures and components (SSC).

Construction Communication System

The Construction Communications System is a distribution system that facilitates communications at the construction site and plant property and will be used to support the construction infrastructure. The communication system will be used to allow communication between temporary construction buildings, offices, and offsite activities related to the construction effort. Portions of the permanent construction communication system may remain in place following construction to support all non-AP1000 buildings.

Subsystem: Construction Communication System – Underground Conduit

Underground conduit is a subsystem of the Construction Communications System that facilitates communication to support construction. It is a part of the main system described above.

4.0 Identify the system, structure and component (SSC) design basis.

Design Basis

The communication systems underground conduit includes all conduit, conductors, connectors, cabling, and any other components related to the conduit system. This system will enable communication of the construction activities and may provide permanent communication for non-AP1000 buildings. The communication systems underground conduit will contain numerous conductors that support voice, data, and component telemetry. These are predominantly low voltage electrical and fiber optic data cables which, if lost, will cause no adverse impact on plant. The system is not connected to any safety related SSC and is not relied upon for any accident mitigation, emergency system, or security system, and thus do not have a reasonable nexus to the radiological health and safety of the public or the common defense and security within the meaning of the LWA rule.

5.0 Identify for the Preconstruction Structures and Components the Seismic Category, Equipment/ SSC Class, Function and Active Passive determination in the table below:
Note: Refer to DCD Tables 3.2-1, 3.2-2, and 3.2-3.

Preconstruction Component or Structure	Seismic Cat.	Equip/SSC Class	Function	Active/ Passive
Underground Communication Conduit	NS	E	To carry the information to various parts of the construction site	Passive
Communication Wiring	NS	E	Transfer communications to various parts of the construction site	Passive

Class E – This class is used for nonsafety-related structures, systems, and components that do not have a specialized industry standard or classification.

5.1 Determine construction uses for the SC: The Construction Communication System supports construction by providing communication service to temporary construction buildings, offices, and activities related to the construction effort. Portions of the permanent construction communication system may remain in place following construction to support all non-AP1000 buildings

Proceed to step 6.0 and perform a preliminary screening.

6.0 Is the system Safety Related or designed to satisfy the requirements of 10 CFR 73, 10 CFR 50.48 or Criterion 3 of 10 CFR 50 Appendix A?

☐ **If** YES, **Then** an LWA or COL is required for installation or construction of the SSCs. Complete Step 9.0, Conclusion.

☒ **If** NO, **Then** proceed to Step 7.0.

7.0 Does the System have the potential to cause a reactor scram or actuation of a safety system?

☐ **If** YES, **Then** perform an operating experience review for the preconstruction structure and components and document below.

A. Evaluate related operating experience.

B. Proceed with preconstruction screening Step 8.0.

☒ **If** NO, **Then** proceed with preconstruction screening Step 8.0.

8.0 10 CFR 50.10(a)1 Preconstruction Screening

Activities constituting construction are the driving of piles, subsurface preparation, placement of backfill, concrete or in-place assembly, erection, fabrication, or testing which are for:

(i) Safety-related structures, systems, or components of a facility, as defined in 10 CFR 50.2;

A review of the AP1000 DCD and VEGP COLA application was performed. The Construction Communication System is not described in the AP1000 DCD or the VEGP COLA application. The Construction Communication System design basis is summarized above. This evaluation determined that the Vogtle Construction Communication System is not safety-related. Criterion not met.

(ii) SSCs relied upon to mitigate accidents or transients or used in plant emergency operating procedures;

A review of the AP1000 DCD and VEGP COLA application was performed. This review determined that the Construction Communication System is not described in the AP1000 DCD or the VEGP COLA application. The Construction Communication System design basis is summarized above. The results of this review demonstrate that the Vogtle Construction Communication System is not relied upon to mitigate accidents or transients. A review of the current AP 1000 EOP revisions, referenced in section 10.0, was performed and these preconstruction items are not relied upon to meet any success criteria. Criterion not met.

(iii) SSCs whose failure could prevent safety-related SSCs from fulfilling their safety-related function;

A review of the AP1000 DCD and VEGP COLA was performed. This review determined that the Construction Communication System is not described in the AP1000 DCD or the VEGP COLA application. The Construction Communication System design basis is summarized above. The Vogtle Construction Communication System will not prevent the function of a safety related structure, system or component. Criterion not met.

(iv) SSCs whose failure could cause a reactor scram or actuation of a safety-related system;

A review of the AP1000 DCD and VEGP COLA was performed. This review determined that the Construction Communication System is not described in the AP1000 DCD or the VEGP COLA application. The Construction Communication System design basis is summarized above. Loss of the Vogtle Construction Communication System will not cause a reactor scram or actuation of a safety system. Criterion not met.

(v) SSCs necessary to comply with 10 CFR Part 73, "Physical Protection of Plants and Materials;"

A review of the AP1000 DCD and VEGP COLA including the VEGP 3 and 4 Physical Security Plan was performed. The preconstruction structures and components associated with the construction communications system, to include transmitters, receivers, low voltage electrical and fiber optic cable, do not perform any function associated with physical security requirements contained in 10 CFR 73.55. Design of the system must include appropriate measures to preclude interference with the existing security communications system utilized on VEGP Units 1 & 2. Criterion not met.

(vi) SSCs necessary to comply with 10 CFR 50.48 "Fire Protection" and criterion 3, Protection and Reactivity Control Systems," of 10 CFR Part 50, Appendix A, "General Design Criteria for Nuclear Power Plants;" and

A review of the AP1000 DCD and VEGP COLA was performed. This review determined that the Construction Communication System is not described in the AP1000 DCD or the VEGP COLA application. The Construction Communication System design basis is summarized above. The Vogtle Construction Communication System is not necessary to meet fire protection requirements for the power plant or for protection and reactivity control systems function. Criterion not met.

(vii) Onsite emergency facilities, that is, technical support and operations support centers, necessary to comply with 10 CFR 50.47, "Emergency Plans," and 10 CFR Part 50, Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities."

A review of the AP1000 DCD and VEGP COLA including the VEGP 3 and 4 Emergency Plan (EP) was performed. This review determined that the Construction Communication System is not described in the AP1000 DCD or the VEGP COLA application. The Construction Communication System design basis is summarized above. Some elements of the Construction Communication System infrastructure could eventually be used to provide communication services to the Communications Support Center (CSC) building which will house the Technical Support Center or to the Operational Support Centers located in the Control Support Areas. However, construction of building services infrastructure outside of the facility footprint is not considered to be facility construction. In addition, the EP does not credit the physical properties of the portions of the construction communication infrastructure that may be used by the CSC and the EP Inspection, Test, Analyses, and Acceptance Criteria do not test communications infrastructure but the function of the as built communication devices. Therefore, criterion vii is not met.

If any of the 10 CFR 50.10(a)1 screening criteria have been met, Then the installation of the structure and/or components require an LWA or COL. Proceed to Step 9.0.

9.0 Conclusion: Complete summary statement for conclusion

The Vogtle Construction Communication System is not included in the definition of construction, and NRC approval via an LWA or COL is not required to conduct activities related to their erection.

10.0 References

10.1 AP1000 DCD, Rev. 16

10.2 VEGP 3 & 4 COLA, Rev. 0

10.3 WCAP-15985 Revision 2, "AP 1000 Implementation of the Regulatory Treatment of Nonsafety-Related Systems Process," dated August 2003

10.4 Westinghouse Emergency Operating Procedures APP-GW-GJP-201 through APP-GW-GJP-236

11.0 Review and Approval

	Activity Performed	Name (Print and Sign)	Date
1	Preparer		
2	Engineering Review		
3	Emergency Operating Procedures Review		
4	Emergency Planning Review		
5	Security Review		
6	Licensing Review		
7	Management Approval		

Activity: Installation of Construction Power Distribution System: The Construction Power System is a 13.8kV combination overhead and subsurface system that distributes power around the periphery of the plant property and will be used to support the construction infrastructure and permanent site specific systems and structures. Buried and overhead portions of this system will be installed during site preconstruction and LWA activities including underground power lines and structures, overhead lines, structures associated transformers, breakers, and other equipment.

1.0 Does the installation activity include an SSC or elements of an SSC that will be a permanent part of the operating plant

☒ **If** YES, **Then** complete Step 3.0

☐ **If** NO, **Then** complete Step 2.0

2.0 Is the activity preconstruction as defined in 10CFR50.10(a), COL/ESP-ISG-004, its supplement, and RG?

Can the activity be considered any of the following?

(a) Changes for temporary use of the land for public recreational purposes;

(b) Site exploration, including necessary borings to determine foundation conditions or other preconstruction monitoring to establish background information related to the suitability of the site, the environmental impacts of construction or operation, or the protection of environmental values;

(c) Preparation of a site for construction of a facility, including clearing of the site, grading, installation of drainage, erosion and other environmental mitigation measures, and construction of temporary roads and borrow areas;

(d) Erection of fences and other access control measures;

(e) Excavation;

(f) Erection of support buildings (such as, construction equipment storage sheds, warehouse and shop facilities, utilities, concrete mixing plants, docking and unloading facilities, and office buildings) for use in connection with the construction of the facility;

(g) Building of service facilities, such as paved roads, parking lots, railroad spurs, exterior utility and lighting systems, potable water systems, sanitary sewerage treatment facilities, and transmission lines;

(h) Procurement or fabrication of components or portions of the proposed facility occurring at other than the final, in-place location at the facility; or

(i) Manufacture of a nuclear power reactor under a manufacturing license under Subpart F, "Manufacturing Licenses," of 10 CFR Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants," to be installed at the proposed site and to be part of the proposed facility.

☐ **If** YES, **Then** complete Step 2.1

☐ **If** NO, **Then** complete Step 3.0

2.1 Is the activity taking place within the necessary excavation?

☐ **If** YES, **Then** complete Step 2.2

☐ **If** NO, **Then** activity is considered preconstruction. Complete conclusion Step 9.0.

2.2 If the activity is taking place in the necessary excavation, is the activity permanent?

☐ **If** YES, **Then** an LWA or COL is required for installation or construction of the SSCs. Complete conclusion Step 9.0.

☐ **If** NO, **Then** activity is considered preconstruction. Complete conclusion Step 9.0.

3.0 Identify the system and preconstruction structures and components (SSC).

Construction Power Distribution System

The Construction Power System is a 13.8kV combination overhead and subsurface system that distributes power around the periphery of the plant property and will be used to support the construction infrastructure and permanent site specific systems and structures. The power distribution system will be used to power temporary construction buildings, offices, and activities related to the construction effort. Portions of the permanent buried construction power system will remain in place following construction to support all non-AP1000 buildings, including well water. The Vogtle Site has an existing overhead power distribution system that was installed during units 1 and 2 construction. This system will be modified and enhanced to support units 3 and 4 construction.

4.0 Identify the system, structure and component (SSC) design basis.

Design Basis

The Construction Power Distribution System supports construction by providing electrical service to temporary construction buildings, offices, and activities related to the construction effort. Non safety-related electrical equipment and instrumentation is constructed to standards including non-Class 1E IEEE standards and National Electrical Manufacturers Association (NEMA) standards. The system is not connected to any safety related SSC and is not relied upon for any accident mitigation, emergency system, or security system, and thus do not have a reasonable nexus to the radiological health and safety of the public or the common defense and security within the meaning of the LWA rule.

The permanent portion of the construction power distribution system will support the pumps and equipment associated with RWS (well water subsystem), PWS and YFS. A permanent diesel generator system, totally separate from the AP1000 diesel generators, will provide backup power to these systems in the event the construction power distribution system is de-energized.

The permanent portion of the construction power distribution system will also support the new Vogtle site support buildings including the Administrative Building, Engineering Building, Maintenance Building, Communications Support Building (CSC), the Personnel Access Point (PAP), Low Level Storage Building, In-Processing Building and the Visitors Center. The CSC will house the Technical Support Center (TSC) and the Central Alarm Station (CAS) for the Vogtle site. Both the CSC and security-related equipment will be provided power for only the

building functions such as lights and HVAC. All security related functions will receive power from the standard plant via the security duct bank.

5.0 Identify for the Preconstruction Structures and Components the Seismic Category, Equipment/ SSC Class, Function and Active Passive determination in the table below: ***Note: Refer to DCD Tables 3.2-1, 3.2-2, and 3.2-3.***

Preconstruction Component or Structure	Seismic Cat.	Equip/SSC Class	Function	Active/ Passive
Underground Power Transmission Lines	NS	*	To carry power to construction site	Passive
Underground Structures	NS	*	Structures to help with the transmission of power	Passive
Overhead Power Transmission Lines	NS	*	To carry power to construction site	Passive
Overhead Power Transmission Structures	NS	*	Structures to help with the transmission of power	Passive
Associated transformers, breakers, and other equipment	NS	*	To assist in the transmission of construction power	Active

* The non safety-related electrical equipment and instrumentation is constructed to standards including non-Class 1E IEEE standards and National Electrical Manufacturers Association (NEMA) standards.

5.1 Determine construction uses for the SC: The Construction Power Distribution System supports construction by providing electrical service to temporary construction buildings, offices, and activities related to the construction effort. Portions of the permanent buried construction power system will remain in place following construction to support all non-AP1000 buildings, including well water. The Vogtle system will continue to support the Vogtle training center and other Units 1 and 2 support facilities.

Proceed to step 6.0 and perform a preliminary screening.

6.0 Is the system Safety Related or designed to satisfy the requirements of 10 CFR 73, 10 CFR 50.48 or Criterion 3 of 10 CFR 50 Appendix A?

☐ **If** YES, **Then** an LWA or COL is required for installation or construction of the SSCs. Complete Step 9.0, Conclusion.

☒ **If** NO, **Then** proceed to Step 7.0.

7.0 Does the System have the potential to cause a reactor scram or actuation of a safety system?

☐ **If** YES, **Then** perform an operating experience review for the preconstruction structure and components and document below.

A. Evaluate related operating experience.

B. Proceed with preconstruction screening Step 8.0.

☒ **If** NO, **Then** proceed with preconstruction screening Step 8.0.

8.0 10 CFR 50.10(a)1 Preconstruction Screening

Activities constituting construction are the driving of piles, subsurface preparation, placement of backfill, concrete or in-place assembly, erection, fabrication, or testing which are for:

(i) Safety-related structures, systems, or components of a facility, as defined in 10 CFR 50.2;

A review of the AP1000 DCD and VEGP COLA was performed. This review determined that the Construction Power Distribution System is not described in the AP1000 DCD or the VEGP COLA. Construction Power Distribution System design basis is summarized above. This review determined that the Vogtle Construction Power Distribution System is not safety-related. Criterion not met.

(ii) SSCs relied upon to mitigate accidents or transients or used in plant emergency operating procedures;

A review of the AP1000 DCD and VEGP COLA was performed. This review determined that the Construction Power Distribution System is not described in the AP1000 DCD or the VEGP COLA. The Construction Power Distribution System design basis is summarized above. The results of this review determined that the remaining elements Vogtle Construction Power Distribution System infrastructure is not relied upon to mitigate accidents or transients. In addition, a review of the current AP 1000 EOP revisions, referenced in section 10.0, was performed and these preconstruction items are not relied upon to meet any success criteria. Criterion not met.

(iii) SSCs whose failure could prevent safety-related SSCs from fulfilling their safety-related function;

A review of the AP1000 DCD and VEGP COLA was performed. This review determined that the Construction Power Distribution System is not described in the AP1000 DCD or the VEGP COLA. The Construction Power Distribution System design basis is summarized above. This review determined that the remaining elements of the Vogtle Construction Power Distribution System infrastructure will not prevent the function of a safety related structure, system or component. Criterion not met.

(iv) SSCs whose failure could cause a reactor scram or actuation of a safety-related system;

A review of the AP1000 DCD and VEGP COLA was performed. This review determined that the Construction Power Distribution System is not described in the AP1000 DCD or the VEGP COLA. The Construction Power Distribution System design and safety design basis is summarized above. This review determined that loss of the remaining elements of the Vogtle Construction Power Distribution System infrastructure will not cause a reactor scram or actuation of a safety system. Criterion not met.

(v) SSCs necessary to comply with 10 CFR Part 73, "Physical Protection of Plants and Materials;"

A review of the AP1000 DCD and VEGP COLA including the Physical Security Plan was performed. This review determined that the Construction Power Distribution System is not described in the AP1000 DCD or the VEGP COLA. The preconstruction structures and components associated with the construction power distribution system, to include the transmission lines and support structures, do not perform any function associated with physical security requirements contained in 10 CFR 73.55. Design of the system must include appropriate measures to preclude use of the system as a means of bridging to circumvent the existing VEGP Unit 1 & 2 site protected area (PA) boundary. Criterion not met.

(vi) SSCs necessary to comply with 10 CFR 50.48 "Fire Protection" and criterion 3, Protection and Reactivity Control Systems," of 10 CFR Part 50, Appendix A, "General Design Criteria for Nuclear Power Plants;" and

A review of the AP1000 DCD and VEGP COLA was performed. This review determined that the Construction Power Distribution System is not described in the AP1000 DCD or the VEGP COLA. The Construction Power Distribution System design basis is summarized above. This review determined that the remaining elements of the Vogtle Construction Power Distribution System infrastructure is not necessary to meet fire protection requirements for the power plant or for protection and reactivity control systems function. Criterion not met.

(vii) Onsite emergency facilities, that is, technical support and operations support centers, necessary to comply with 10 CFR 50.47, "Emergency Plans," and 10 CFR Part 50, Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities."

A review of the AP1000 DCD and VEGP COLA including the Emergency Plan was performed. This review determined that the Construction Power Distribution System is not described in the AP1000 DCD or the VEGP COLA. The Construction Power Distribution System design basis is summarized above. Some elements of the Construction Power Distribution system infrastructure may be used to provide electrical service to the Communications Support Center building which will house the Technical Support Center. However, construction of building services infrastructure outside of the facility footprint is not considered to be facility construction. In addition, the EP does not credit the Construction Power Distribution System nor does the EP Inspection, Test, Analyses, and Acceptance Criteria include the Construction Power System infrasructure. Therefore, criterion vii is not met.

If any of the 10 CFR 50.10(a)1 screening criteria have been met, Then the installation of the structure and/or components require an LWA or COL. Proceed to Step 9.0.

9.0 Conclusion: Complete summary statement for conclusion

The Vogtle Construction Power Distribution System is not included in the definition of construction, and NRC approval via an LWA or COL is not required to conduct activities related to their erection.

10.0 References

10.1 AP1000 DCD, Rev. 16

10.2 VEGP 3 & 4 COLA, Rev. 0

10.3 WCAP-15985 Revision 2, "AP 1000 Implementation of the Regulatory Treatment of Nonsafety-Related Systems Process," dated August 2003

10.4 SV0-0000-E2-001, Electrical Site Plan - Underground Power

10.5 SV0-0000-E2-002, Electrical Site Plan

10.6 Westinghouse Emergency Operating Procedures APP-GW-GJP-201 through APP-GW-GJP-236

11.0 Review and Approval

	Activity Performed	Name (Print and Sign)	Date
1	Preparer		
2	Engineering Review		
3	Emergency Operating Procedures Review		
4	Emergency Planning Review		
5	Security Review		
6	Licensing Review		
7	Management Approval		

10 CFR 50.10(a)1, Preconstruction Screening Evaluation for VCSNS Units 2 & 3

Circulating Water System Cooling Towers – Example 4

Activity: Installation of Circulation Water System: The Circulating Water System (CWS) cooling towers provide a heat sink for the waste heat exhausted from the steam turbine. The towers may be installed during preconstruction. Activities including in this evaluation are limited to the cooling tower structures their foundations, piping, fans, fill, CWS pump bays and electrical I&C duct banks in the vicinity of the towers (i.e. east of the railroad spur line). (This evaluation is not for the CWS piping or for electrical cabling duct banks etc. going into the Protected Area of Units 2 or 3.)

1.0 Does the installation activity include an SSC or elements of an SSC that will be a permanent part of the operating plant

☒ **If** YES, **Then** complete Step 3.0

☐ **If** NO, **Then** complete Step 2.0

2.0 Is the activity preconstruction as defined in 10CFR50.10(a), COL/ESP-ISG-004, its supplement, and RG?

Can the activity be considered any of the following?

(a) Changes for temporary use of the land for public recreational purposes;

(b) Site exploration, including necessary borings to determine foundation conditions or other preconstruction monitoring to establish background information related to the suitability of the site, the environmental impacts of construction or operation, or the protection of environmental values;

(c) Preparation of a site for construction of a facility, including clearing of the site, grading, installation of drainage, erosion and other environmental mitigation measures, and construction of temporary roads and borrow areas;

(d) Erection of fences and other access control measures;

(e) Excavation;

(f) Erection of support buildings (such as, construction equipment storage sheds, warehouse and shop facilities, utilities, concrete mixing plants, docking and unloading facilities, and office buildings) for use in connection with the construction of the facility;

(g) Building of service facilities, such as paved roads, parking lots, railroad spurs, exterior utility and lighting systems, potable water systems, sanitary sewerage treatment facilities, and transmission lines;

(h) Procurement or fabrication of components or portions of the proposed facility occurring at other than the final, in-place location at the facility; or

(i) Manufacture of a nuclear power reactor under a manufacturing license under Subpart F, “Manufacturing Licenses,” of 10 CFR Part 52, “Licenses, Certifications, and Approvals for Nuclear Power Plants,” to be installed at the proposed site and to be part of the proposed facility.

☐ **If** YES, **Then** complete Step 2.1

☐ **If** NO, **Then** complete Step 3.0

2.1 Is the activity taking place within the necessary excavation?

☐ **If** YES, **Then** complete Step 2.2

☐ **If** NO, **Then** activity is considered preconstruction. Complete conclusion Step 9.0.

2.2 If the activity is taking place in the necessary excavation, is the activity permanent?

☐ **If** YES, **Then** an LWA or COL is required for installation or construction of the SSCs. Complete conclusion Step 9.0.

☐ **If** NO, **Then** activity is considered preconstruction. Complete conclusion Step 9.0.

3.0 Identify the system and preconstruction structures and components (SSC).

Circulating Water System (CWS) Cooling Tower

The CWS cooling towers provide a heat sink for the waste heat exhausted from the steam turbine. VCSNS Unit 2 & 3 will each use 2 round, counter flow, 16 cell, mechanical draft cooling towers. Each of the towers will be approximately 275' in diameter and 75' tall and of concrete construction. This evaluation is to include the tower and its associated equipment supplied by the tower vendor. The CWS pumps are housed in a bay that is an extension of the tower basins and they are included in this evaluation due to their proximity to the towers. This evaluation specifically excludes CWS piping entering/leaving the Protected Area, as well as various electrical commodities (cables duct banks) entering/leaving the Protected Area. (Piping and electrical commodities in close proximity are included within the scope of this evaluation.) The components included in this evaluation are associated directly with the CWS cooling tower, and the CWS pump bays and pumps that are located at the towers. These SSCs are all located within an area east of the railroad spur that is east of the Unit 2 & 3 Protected Area.

The closest distance from a cooling tower to the plant power block is about 500 feet. Excavation and fill work must be accomplished prior to start of the tower foundation and basins. The fill (earth work) required for the towers is outside the Protected Area. Details of the towers are not presently available but it is expected the basin may be only partially below grade. The water level in the tower basin will be no more than 3 feet above grade elevation. Should a cooling tower basin wall break, little, if any, water would reach the plant because of the remote location of the tower and the grading of the site.

The cooling tower locations were selected to ensure the plume would not interfere with operation of Units 1, Units 2 and 3 and the switch yards and transmission lines. Evaluations of cooling tower effects can be found the Environmental Report Section 5.3.3.1.

10 CFR 50.10(a)1, Preconstruction Screening Evaluation for VCSNS Units 2 & 3

Circulating Water System Cooling Towers – Example 4

4.0 Identify the system, structure and component (SSC) design basis.

Safety Design Basis

The circulating water system (CWS) serves no safety-related function and therefore has no nuclear safety design basis. The SSC included within the scope of this evaluation are located outside the of the excavation area for the structures located within the Unit 2 & 3 Protected Area.

Power Generation Design Basis

The CWS supplies cooling water to remove heat from the main condensers. The CWS also supplies cooling water to the turbine building closed cooling water system (TCS) heat exchangers and the condenser vacuum pump seal water heat exchangers under varying conditions of power plant loading and design weather conditions.

The Circulating Water System (CWS) system components provide the water system inventory as well as the heat sink for the turbine cycle. Loss of CWS would result in a loss of condenser vacuum. The loss of condenser vacuum would lead to a turbine trip. The design of the AP1000 protection system does not generate a direct Reactor Trip from a Turbine Trip.

A review of WCAP-15985 Revision 2, "AP 1000 Implementation of the Regulatory Treatment of Nonsafety-Related Systems Process," evaluated Reactor trip initiating event systems including loss of main feed water initiating event. The conclusion of this evaluation is as follows:

> Therefore, from the perspective of initiating event frequencies for the baseline PRA, the evaluation for these two initiators identify no nonsafety-related SSCs where additional regulatory oversight would significantly reduce the associated initiating event frequencies, the CDF, and the LRF. No proposed regulatory oversight recommendations have been identified for these nonsafety-related SSCs.

The Circulating Water System cooling tower foundation, buried piping, and duct banks located outside the Protected Area do not perform any safety related or supplemental safety related functions, and thus do not have a reasonable nexus to the radiological health and safety of the public or the common defense and security within the meaning of the LWA rule.

Impact on Other SSCs

Failure of the identified non-safety related passive structures and components are not plausible as an initiating event for a reactor scram or safety system actuation. The evaluated SSC located outside the Protected Area do not have a reasonable nexus to SSCs meeting the requirements of 10CFR50.10(a)(1) to require a COL or LWA to installation as preconstruction activities.

10 CFR 50.10(a)1, Preconstruction Screening Evaluation for VCSNS Units 2 & 3

Circulating Water System Cooling Towers – Example 4

5.0 Identify for the Preconstruction Structures and Components the Seismic Category, Equipment/ SSC Class, Function and Active Passive determination in the table below:
Note: Refer to DCD Tables 3.2-1, 3.2-2, and 3.2-3.

Preconstruction Component or Structure	Seismic Cat.	Equip/SSC Class	Function	Active or Passive
Cooling Tower Foundations	NS	E	a structure to facilitate cooling of Turbine exhaust steam	Passive
Buried CWS piping in the vicinity of the CWS cooling towers	NS	E	a flow path for CWS water	Passive
Buried electrical / I&C duct banks in the vicinity of the CWS cooling towers	NS	E	a structure to house power and I&C cables	Passive

Class E – This class is used for nonsafety-related structures, systems, and components that do not have a specialized industry standard or classification (see DCD Section 3.2.2.7.)

5.1 Determine construction uses for the SC: None

Proceed to step 6.0 and perform a preliminary screening.

6.0 Is the system Safety Related or designed to satisfy the requirements of 10 CFR 73, 10 CFR 50.48 or Criterion 3 of 10 CFR 50 Appendix A?

☐ **If** YES, **Then** an LWA or COL is required for installation or construction of the SSCs. Complete Step 9.0, Conclusion.

☒ **If** NO, **Then** proceed to Step 7.0.

7.0 Does the System have the potential to cause a reactor scram or actuation of a safety system?

☒ **If** YES, **Then** perform an operating experience review for the preconstruction structure and components and document below.

A. Evaluate related operating experience.

A review of licensee event reports for current operating reactors did not identify occurrences of failures of the SSCs identified above that resulted in plant scrams or safety system actuations. Failure of the identified non-safety related passive structures and components are not credible as an initiating event for a reactor scram or safety system actuation.

B. Proceed with preconstruction screening Step 8.0.

☐ **If** NO, **Then** proceed with preconstruction screening Step 8.0.

8.0 10 CFR 50.10(a)1 Preconstruction Screening

Activities constituting construction are the driving of piles, subsurface preparation, placement of backfill, concrete or in-place assembly, erection, fabrication, or testing which are for:

(i) Safety-related structures, systems, or components of a facility, as defined in 10 CFR 50.2;

A review of the AP1000 DCD, VCSNS Unit 2 & 3 COLA, Circulating Water System (CWS) System Specification Document, and WCAP-15985 was performed. This review determined that the CWS cooling tower and associated SSCs are not safety-related. Criterion not met.

(ii) SSCs relied upon to mitigate accidents or transients or used in plant emergency operating procedures;

A review of the AP1000 DCD, VCSNS Unit 2 & 3 COLA, Circulating Water System (CWS) System Specification Document, and WCAP-15985 was performed. This review determined that the CWS cooling tower and associated SSCs are not relied upon to mitigate accidents or transients In addition, a review of the current AP 1000 EOP revisions, referenced in section 10.0, was performed and these preconstruction items are not relied upon to meet any success criteria. Criterion not met.

(iii) SSCs whose failure could prevent safety-related SSCs from fulfilling their safety-related function;

A review of the AP1000 DCD, VCSNS Unit 2 & 3 COLA, Circulating Water System (CWS) System Specification Document, and WCAP-15985 was performed. This review determined that the CWS cooling tower and associated SSCs and their preconstruction installation could prevent the function of a safety related structure, system or component. Criterion not met.

(iv) SSCs whose failure could cause a reactor scram or actuation of a safety-related system;

A review of the AP1000 DCD, VCSNS Unit 2 & 3 COLA, Circulating Water System (CWS) System Specification Document, and WCAP-15985 was performed. This review determined that the CWS cooling tower and associated SSCs failures are not credible initiating event for a reactor scram or safety system actuation. Criterion not met.

(v) SSCs necessary to comply with 10 CFR Part 73, "Physical Protection of Plants and Materials;"

A review of the AP1000 DCD, VCSNS Unit 2 & 3 COLA, Circulating Water System (CWS) System Specification Document, and WCAP-15985 was performed. The evaluation of these SSCs was specifically limited to outside the Protected Areas to ensure no impact to the Physical Security Plan. This review determined that the CWS cooling tower and associated SSCs do not perform any function associated with physical security requirements contained in 10 CFR 73.55. Criterion not met.

(vi) SSCs necessary to comply with 10 CFR 50.48 "Fire Protection" and criterion 3, Protection and Reactivity Control Systems," of 10 CFR Part 50, Appendix A, "General Design Criteria for Nuclear Power Plants;" and

A review of the AP1000 DCD, VCSNS Unit 2 & 3 COLA, Circulating Water System (CWS) System Specification Document, and WCAP-15985 was performed. This review determined that the CWS cooling tower and associated SSCs are not necessary to meet fire protection requirements for the power plant or for protection and reactivity control systems function. Criterion not met.

(vii) Onsite emergency facilities, that is, technical support and operations support centers, necessary to comply with 10 CFR 50.47, "Emergency Plans," and 10 CFR Part 50, Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities."

A review of the AP1000 DCD, VCSNS Unit 2 & 3 COLA, Circulating Water System (CWS) System Specification Document, and WCAP-15985 was performed. This review determined that the CWS cooling tower and associated SSCs are not relied on in the EP nor subject to any EP Inspection, Analyses, Testing and Acceptance Criteria (ITAAC). Therefore, criterion vii is not met.

If any of the 10 CFR 50.10(a)1 screening criteria have been met, Then the installation of the structure and/or components require an LWA or COL. Proceed to Step 9.0.

9.0 Conclusion: Complete summary statement for conclusion

This evaluation demonstrates that the CWS cooling tower and associated SSCs are not included in the definition of construction, and NRC approval via an LWA or COL is not required to conduct activities related to its erection.

10.0 References

10.1 AP1000 DCD, Rev. 16

10.2 VCSNS Unit 2 & 3 COLA, Rev. 0

10.3 WCAP-15985 Revision 2, "AP 1000 Implementation of the Regulatory Treatment of Nonsafety-Related Systems Process," dated August 2003

10.4 Westinghouse Emergency Operating Procedures APP-GW-GJP-201 through APP-GW-GJP-236

10.5 10CFR50.10

11.0 Review and Approval

Activity Performed	Name (Print and Sign)	Date

10 CFR 50.10(a)1, Preconstruction Screening Evaluation for VCSNS Units 2 & 3

Circulating Water System Cooling Towers – Example 4

Preparer	_____	_____
Engineering Review	_____	_____
Licensing Review	_____	_____
Management Approval	_____	_____

Activity: Installation of Potable Water System: The potable water system (PWS) is designed to furnish water for domestic use and human consumption during construction and also for plant use after operation. Buried portions of this system will be installed during site preconstruction and LWA activities including the buried piping, potable water storage tanks, potable waster pumps and jockey pump, and distribution header.

1.0 Does the installation activity include an SSC or elements of an SSC that will be a permanent part of the operating plant

☒ **If** YES, **Then** complete Step 3.0

☐ **If** NO, **Then** complete Step 2.0

2.0 Is the activity preconstruction as defined in 10CFR50.10(a), COL/ESP-ISG-004, its supplement, and RG?

Can the activity be considered any of the following?

(a) Changes for temporary use of the land for public recreational purposes;

(b) Site exploration, including necessary borings to determine foundation conditions or other preconstruction monitoring to establish background information related to the suitability of the site, the environmental impacts of construction or operation, or the protection of environmental values;

(c) Preparation of a site for construction of a facility, including clearing of the site, grading, installation of drainage, erosion and other environmental mitigation measures, and construction of temporary roads and borrow areas;

(d) Erection of fences and other access control measures;

(e) Excavation;

(f) Erection of support buildings (such as, construction equipment storage sheds, warehouse and shop facilities, utilities, concrete mixing plants, docking and unloading facilities, and office buildings) for use in connection with the construction of the facility;

(g) Building of service facilities, such as paved roads, parking lots, railroad spurs, exterior utility and lighting systems, potable water systems, sanitary sewerage treatment facilities, and transmission lines;

(h) Procurement or fabrication of components or portions of the proposed facility occurring at other than the final, in-place location at the facility; or

(i) Manufacture of a nuclear power reactor under a manufacturing license under Subpart F, "Manufacturing Licenses," of 10 CFR Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants," to be installed at the proposed site and to be part of the proposed facility.

☐ **If** YES, **Then** complete Step 2.1

☐ **If** NO, **Then** complete Step 3.0

2.1 Is the activity taking place within the necessary excavation?

☐ **If** YES, **Then** complete Step 2.2

☐ **If** NO, **Then** activity is considered preconstruction. Complete conclusion Step 9.0.

2.2 If the activity is taking place in the necessary excavation, is the activity permanent?

☐ **If** YES, **Then** an LWA or COL is required for installation or construction of the SSCs. Complete conclusion Step 9.0.

☐ **If** NO, **Then** activity is considered preconstruction. Complete conclusion Step 9.0.

3.0 Identify the system and preconstruction structures and components (SSC).

Potable Water System (PWS)

The potable water system (PWS) is designed to furnish water for domestic use and human consumption. It complies with the following standards:

- Bacteriological and chemical quality requirements as referenced in EPA "National Primary Drinking Water Standards," 40 CFR Part 141.
- The distribution of water by the system is in compliance with 29 CFR 1910, Occupational Safety and Health Standards, Part 141.

The source of water for the potable water system is the site well water subsystem of the Raw Water System (RWS). The potable water system is a common system that consists of a potable water storage tank, two potable water pumps, a jockey pump, and a distribution header that serves the Unit 3 and 4 power blocks and associated buildings. The potable water storage tank is located to the south of the CWS cooling towers. The potable water pumps are housed in a pump house near the tank. The system is not shared with the Units 1 and 2 potable water system.

4.0 Identify the system, structure and component (SSC) design basis.

Design Basis

The potable water system serves no safety-related function and therefore has no nuclear safety design basis.

The PWS supplies water for personnel I use (e.g., drinking water). It does not perform or support any safety-related function and is not credited for mitigation of design basis accidents or low probability events such as seismic, fire, sabotage, passive failures, multiple active failures etc. Failure of components of the PWS will not preclude essential function of safety systems.

WCAP-15985 Revision 2, "AP 1000 Implementation of the Regulatory Treatment of Nonsafety-Related Systems Process," dated August 2003 documents that the PWS performs no defense-in-depth functions. The PWS does not supply water to any other systems nor support other non safety-related functions.

5.0 Identify for the Preconstruction Structures and Components the Seismic Category, Equipment/ SSC Class, Function and Active Passive determination in the table below: ***Note: Refer to DCD Tables 3.2-1, 3.2-2, and 3.2-3.***

Structure/Component	Seismic Category	Equipment/ SSC Class	Function	Passive/ Active
Buried Piping	NS	E	Provide a flow path for system fluid	Passive
Potable Water Storage Tanks	NS	E	Provide a place for storage of system fluid	Passive
Potable Water Pumps and Jockey Pump	NS	E	Motive force for system fluid	Active
Distribution Header	NS	E	Provides a flow path for system fluid	Passive

Class E – These classes are used for nonsafety-related structures, systems, and components that do not have a specialized industry standard or classification.

5.1 Determine construction uses for the SC: The Vogtle potable water system (PWS) will also be utilized during construction as a source of drinking water.

Proceed to step 6.0 and perform a preliminary screening.

6.0 Is the system Safety Related or designed to satisfy the requirements of 10 CFR 73, 10 CFR 50.48 or Criterion 3 of 10 CFR 50 Appendix A?

☐ **If** YES, **Then** an LWA or COL is required for installation or construction of the SSCs. Complete Step 9.0, Conclusion.

☒ **If** NO, **Then** proceed to Step 7.0.

7.0 Does the System have the potential to cause a reactor scram or actuation of a safety system?

☐ **If** YES, **Then** perform an operating experience review for the preconstruction structure and components and document below.

A. Evaluate related operating experience.

B. Proceed with preconstruction screening Step 8.0.

☒ **If** NO, **Then** proceed with preconstruction screening Step 8.0.

8.0 10 CFR 50.10(a)1 Preconstruction Screening

Activities constituting construction are the driving of piles, subsurface preparation, placement of backfill, concrete or in-place assembly, erection, fabrication, or testing which are for:

(i) Safety-related structures, systems, or components of a facility, as defined in 10 CFR 50.2;

A review of the AP1000 DCD, VEGP COLA, Vogtle Units 3 and 4 PWS System Specification Document and WCAP-15985 was performed. This review determined that the PWS structures and components planned for installation during preconstruction are not safety-related. Criterion not met.

(ii) SSCs relied upon to mitigate accidents or transients or used in plant emergency operating procedures;

A review of the AP1000 DCD, VEGP COLA, Vogtle Units 3 and 4 PWS System Specification Document and WCAP-15985 was performed. This review determined that the PWS structures and components planned for installation during preconstruction are not relied upon to mitigate accidents or transients. In addition, a review of the current AP 1000 EOP revisions, referenced in section 10.0, was performed and these preconstruction items are not relied upon to meet any success criteria. Criterion not met.

(iii) SSCs whose failure could prevent safety-related SSCs from fulfilling their safety-related function;

A review of the AP1000 DCD, VEGP COLA, Vogtle Units 3 and 4 PWS System Specification Document and WCAP-15985 was performed. This review determined that failure of the PWS structures and components planned for installation during preconstruction will not prevent the function of a safety related structure, system or component. Criterion not met.

(iv) SSCs whose failure could cause a reactor scram or actuation of a safety-related system;

A review of the AP1000 DCD, VEGP COLA, Vogtle Units 3 and 4 PWS System Specification Document and WCAP-15985 was performed. This review determined that loss of the PWS structures and components planned for installation during preconstruction will not cause a reactor scram or actuation of a safety system. Criterion not met.

(v) SSCs necessary to comply with 10 CFR Part 73, "Physical Protection of Plants and Materials;"

A review of the AP1000 DCD, VEGP COLA including the Physical Security Plan, the Vogtle Units 3 and 4 PWS System Specification Document, WCAP-15985, and the drawings identified in 10.0 below was performed. This review determined that PWS preconstruction structures and components, to include storage tanks, buried piping, pumps, and valves, do not perform any function associated with physical security requirements contained in 10 CFR 73.55. Permanent design of the PWS must include appropriate physical barriers to preclude use of the system as an underground pathway to circumvent the site protected area (PA) boundary. Criterion not met.

(vi) SSCs necessary to comply with 10 CFR 50.48 "Fire Protection" and criterion 3, Protection and Reactivity Control Systems," of 10 CFR Part 50, Appendix A, "General Design Criteria for Nuclear Power Plants;" and

A review of the AP1000 DCD, VEGP COLA, Vogtle Units 3 and 4 PWS System Specification Document and WCAP-15985 was performed. This review determined that the PWS structures and components planned for installation during preconstruction is not necessary to meet fire protection requirements for the power plant or for protection and reactivity control systems function. Criterion not met.

(vii) Onsite emergency facilities, that is, technical support and operations support centers, necessary to comply with 10 CFR 50.47, "Emergency Plans," and 10 CFR Part 50, Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities."

A review of the AP1000 DCD, VEGP COLA including Emergency Plan (EP), Vogtle Units 3 and 4 PWS System Specification Document and WCAP-15985 was performed. Some elements of the PWS infrastructure may be used to provide potable water services to the Communications Support Center building which will house the Technical Support Center or to the Operational Support Centers located in the Control Support Areas. However, construction of building services infrastructure outside of the facility footprint is not considered to be facility construction. In addition, the Emergency Plan (EP) does not credit PWS nor does the EP Inspection, Test, Analyses, and Acceptance Criteria require testing for PWS. Therefore, criterion vii is not met.

If any of the 10 CFR 50.10(a)1 screening criteria have been met, Then the installation of the structure and/or components require an LWA or COL. Proceed to Step 9.0.

9.0 Conclusion: Complete summary statement for conclusion

The Potable Water System is not included in the definition of construction, and NRC approval via an LWA or COL is not required to conduct activities related to its erection.

10.0 References

10.1 AP1000 DCD, Rev. 16

10.2 VEGP 3 & 4 COLA, Rev. 0

10.3 WCAP-15985 Revision 2, "AP 1000 Implementation of the Regulatory Treatment of Nonsafety-Related Systems Process," dated August 2003

10.4 SV0-PWS-M3-001, Potable Water System - Specification Document

10.5 SV0-PWS-M6-001, Potable Water System – P&ID

10.6 SV0-PWS-M6-002, Potable Water System – P&ID

10.7 SV0-PWS-P6-001, Potable Water System – Permanent Layout

10.8 SV0-PWS-P6-002, Potable Water System – Construction Layout

10.9 Westinghouse Emergency Operating Procedures APP-GW-GJP-201 through APP-GW-GJP-236

11.0 Review and Approval

	Activity Performed	Name (Print and Sign)	Date
1	Preparer		
2	Engineering Review		
3	Emergency Operating Procedures Review		
4	Emergency Planning Review		
5	Security Review		
6	Licensing Review		
7	Management Approval		

Activity: Installation of Raw Water System: The raw water system consists of two subsystems; the river water subsystem and the well water subsystem. The RWS river water subsystem provides river water for makeup to the CWS cooling tower, dilution water to the Units 3 and 4 blow down sump, and fill-water for the CWS piping. The RWS well water subsystem provides well water for makeup to the service water system (SWS), potable water system (PWS), fire protection system (FPS), and de-mineralized water treatment system (DTS). Portions of this system will be installed during preconstruction and LWA activities including the intake structure, buried piping, well water subsystem, and buried electrical and I&C duct banks.

1.0 Does the installation activity include an SSC or elements of an SSC that will be a permanent part of the operating plant

☒ **If** YES, **Then** complete Step 3.0

☐ **If** NO, **Then** complete Step 2.0

2.0 Is the activity preconstruction as defined in 10CFR50.10(a), COL/ESP-ISG-004, its supplement, and RG?

Can the activity be considered any of the following?

(a) Changes for temporary use of the land for public recreational purposes;

(b) Site exploration, including necessary borings to determine foundation conditions or other preconstruction monitoring to establish background information related to the suitability of the site, the environmental impacts of construction or operation, or the protection of environmental values;

(c) Preparation of a site for construction of a facility, including clearing of the site, grading, installation of drainage, erosion and other environmental mitigation measures, and construction of temporary roads and borrow areas;

(d) Erection of fences and other access control measures;

(e) Excavation;

(f) Erection of support buildings (such as, construction equipment storage sheds, warehouse and shop facilities, utilities, concrete mixing plants, docking and unloading facilities, and office buildings) for use in connection with the construction of the facility;

(g) Building of service facilities, such as paved roads, parking lots, railroad spurs, exterior utility and lighting systems, potable water systems, sanitary sewerage treatment facilities, and transmission lines;

(h) Procurement or fabrication of components or portions of the proposed facility occurring at other than the final, in-place location at the facility; or

(i) Manufacture of a nuclear power reactor under a manufacturing license under Subpart F, "Manufacturing Licenses," of 10 CFR Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants," to be installed at the proposed site and to be part of the proposed facility.

☐ **If** YES, **Then** complete Step 2.1

☐ **If** NO, **Then** complete Step 3.0

2.1 Is the activity taking place within the necessary excavation?

☐ **If** YES, **Then** complete Step 2.2

☐ **If** NO, **Then** activity is considered preconstruction. Complete conclusion Step 9.0.

2.2 If the activity is taking place in the necessary excavation, is the activity permanent?

☐ **If** YES, **Then** an LWA or COL is required for installation or construction of the SSCs. Complete conclusion Step 9.0.

☐ **If** NO, **Then** activity is considered preconstruction. Complete conclusion Step 9.0.

3.0 Identify the system and preconstruction structures and components (SSC).

Raw Water System (RWS)

The raw water system consists of two subsystems; the river water subsystem and the well water subsystem. The RWS river water subsystem provides river water for makeup to the CWS cooling tower, dilution water to the Units 3 and 4 blowdown sump, and fill-water for the CWS piping. The RWS well water subsystem provides well water for makeup to the service water system (SWS), potable water system (PWS), fire protection system (FPS), and de-mineralized water treatment system (DTS). The well water subsystem also provides lubrication and cooling water to the CWS pumps and well water for miscellaneous plant uses.

RWS River Water Subsystem

The source of water for the river water subsystem of the RWS is the local River. For the river water subsystem, the water is drawn through an intake canal that extends from the river to an intake structure. The intake structure is divided into a total of nine independent pump bays. Three bays are dedicated to Unit 3, three bays are dedicated to Unit 4, and the last three bays are empty (to be used for a future unit if pursued). Each bay is equipped with a river water pump, a trash rack, and a traveling screen. Two bays per unit are equipped with screen wash pumps. The river water pumps draw untreated river water and forward it to the CWS natural draft cooling tower basins. A side connection provides dilution water to the blow down sump if required.

RWS Well Water Subsystem

Source water for the well water subsystem is from two deep wells located to the south of the CWS cooling towers. The makeup well water pumps supply well water to the well water storage tank. The well water transfer pumps supply well water to the Service Water System (SWS) mechanical draft cooling tower basin and the De-mineralized Water Treatment System (DTS). A normally closed connection from the secondary fire water tank clear well provides an alternate source of makeup to the SWS mechanical draft cooling tower basin by gravity feed. The well water subsystem also provides well water for filling and makeup to the primary and secondary fire water storage tanks. The Potable Water System (PWS) and miscellaneous well water users also receive water from the well water subsystem

4.0 Identify the system, structure and component (SSC) design basis.

Safety Design Basis

As indicated in FSAR Subsection 9.2.11.1.1, the RWS serves no safety-related function and therefore has no nuclear safety design basis. Failure of the RWS or its components does not affect the ability of safety-related systems to perform their intended function. No interconnections exist between the RWS and any radioactive systems. There are no features or functions of this system credited for mitigation of design basis events. RWS is not credited for long term decay heat removal in the FSAR. Safety-related long term decay heat removal for the AP1000 is achieved through passive plant features only.

The following explanation is provided to show the regulatory treatment of non-safety systems (RTNSS) is not relevant to RWS and therefore, measures for assuring the functional capability of the RWS over time do not apply.

Regulatory Design Basis and Design Criteria for RWS are as follows:

1. As stated in NUREG-1793, Section 22.5, Westinghouse used the process described in WCAP-15985, Revision 2, dated August 2003 to determine which non-safety-related systems in the AP1000 should be subject to regulatory treatment and under what conditions that treatment should apply. The RWS was previously evaluated by Westinghouse, and was identified as a system not requiring regulatory treatment. Therefore, no additional evaluation of the RWS is required.

2. In addition, as stated in the AP1000 DCD, Tier 1, Section 4.0, no Tier 1 interfaces were identified for any systems outside the design certification scope of the AP1000 standard plant design. Therefore, the RWS does not require special treatment. Also, Tier 2 DCD Revision 16, Table 3.2-3, sheet 29 of 65 identifies the raw water system as Class E. Per DCD Table 3.2-1, systems identified as Class E (Other) have no special design requirements.

The Raw Water System (RWS)/well water subsystem is a robust design and includes multiple pumps/wells, large volume storage, and redundant electrical supply, as an additional layer of capability and to support long term occupancy requirements for onsite facilities in the case of a sustained loss of offsite power.

The Raw Water System (RWS) structures and components planned for installation during preconstruction do not perform any safety related or supplemental safety related functions, and the installation of the structures and components do not have a reasonable nexus to the radiological health and safety of the public or the common defense and security within the meaning of the LWA rule.

5.0 Identify for the Preconstruction Structures and Components the Seismic Category, Equipment/ SSC Class, Function and Active Passive determination in the table below: ***Note: Refer to DCD Tables 3.2-1, 3.2-2, and 3.2-3.***

Preconstruction Component or Structure	Seismic Cat.	Equip/SSC Class	Function	Active/ Passive
River water subsystem including:				
Intake Structure	NS	E	Structure to house RWS pumps and provide withdrawal of surface water.	Passive
Buried makeup piping from intake structure to circulating water system towers.	NS	E	Provide flow path for RWS.	Passive
Well water subsystem including:				
Wells	NS	E	Ground water withdrawal.	Passive
Tanks	NS	E	Well water storage.	Passive
Buried Piping	NS	E	Well water flow path.	Passive
Pumps	NS	E	Provide motive force for system fluids.	Active
Valves	NS	E	Provide flow control and isolation functions.	Active
Buried electrical / I&C duct banks for RWS (Permanent)	NS	E	Housing for power and I&C cables.	Passive
Buried electrical / I&C duct banks for RWS (Temporary)	NS	E	Housing for power and I&C cables.	Passive

Class E – This class is used for nonsafety-related structures, systems, and components that do not have a specialized industry standard or classification.

5.1 Determine construction uses for the SC: Portions of the Vogtle Raw Water System (RWS) Well Water Subsystem will be utilized during construction in support of the construction facilities, concrete batching, and wash down. Temporary electrical supply and controls will be used during the preconstruction and construction time period to supply well water for the construction activities. Preconstruction of active components will be limited to those necessary for use during the preconstruction time period. During construction, including during early site preparation, only the well water subsystem of RWS will supply water to the potable water system (PWS) and yard fire protection system (YFS).

Proceed to step 6.0 and perform a preliminary screening.

6.0 Is the system Safety Related or designed to satisfy the requirements of 10 CFR 73, 10 CFR 50.48 or Criterion 3 of 10 CFR 50 Appendix A?

☐ **If** YES, **Then** an LWA or COL is required for installation or construction of the SSCs. Complete Step 9.0, Conclusion.

☒ **If** NO, **Then** proceed to Step 7.0.

7.0 Does the System have the potential to cause a reactor scram or actuation of a safety system?

☐ **If** YES, **Then** perform an operating experience review for the preconstruction structure and components and document below.

A. Evaluate related operating experience.

B. Proceed with preconstruction screening Step 8.0.

☒ **If** NO, **Then** proceed with preconstruction screening Step 8.0.

8.0 10 CFR 50.10(a)1 Preconstruction Screening

Activities constituting construction are the driving of piles, subsurface preparation, placement of backfill, concrete or in-place assembly, erection, fabrication, or testing which are for:

(i) Safety-related structures, systems, or components of a facility, as defined in 10 CFR 50.2;

A review of the AP1000 DCD, VEGP COLA, the Vogtle Units 3 and 4 RWS System Specification Document, and WCAP-15985 was performed. This review determined that the RWS structures and components planned for installation during preconstruction are not safety-related. Criterion not met.

(ii) SSCs relied upon to mitigate accidents or transients or used in plant emergency operating procedures;

A review of the AP1000 DCD, VEGP COLA, the Vogtle Units 3 and 4 RWS System Specification Document, and WCAP-15985 was performed. This review determined that the RWS structures and components planned for installation during preconstruction are not relied upon to mitigate accidents or transients. In addition, a review of the current AP 1000 EOP revisions, referenced in section 10.0, was performed and these preconstruction items are not relied upon to meet any success criteria. Criterion not met.

(iii) SSCs whose failure could prevent safety-related SSCs from fulfilling their safety-related function;

A review of the AP1000 DCD, VEGP COLA, the Vogtle Units 3 and 4 RWS System Specification Document, and WCAP-15985 was performed. This review determined that failure of the RWS structures and components planned for installation during preconstruction will not prevent the function of a safety related structure, system or component. Criterion not met.

(iv) SSCs whose failure could cause a reactor scram or actuation of a safety-related system;

A review of the AP1000 DCD, VEGP COLA, the Vogtle Units 3 and 4 RWS System Specification Document, and WCAP-15985 was performed. This review determined that failure of the RWS structures and components planned for installation during preconstruction would not provide a credible initiating event that would cause a reactor trip or safety system actuation. Criterion not met.

(v) SSCs necessary to comply with 10 CFR Part 73, "Physical Protection of Plants and Materials;"

A review of the AP1000 DCD, VEGP COLA, including the Physical Security Plan, the Vogtle Units 3 and 4 RWS System Specification Document, WCAP-15985 and the drawings identified in 10.0 below was performed. This review determined that RWS preconstruction structures and components, to include the intake structure, buried piping and buried duct banks, wells, tanks, pumps, and valves, do not perform any function associated with physical security requirements contained in 10 CFR 73.55. Permanent design of the RWS must include appropriate physical barriers to preclude use of the system as an underground pathway to circumvent the site protected area (PA) boundary. Criterion not met.

(vi) SSCs necessary to comply with 10 CFR 50.48 "Fire Protection" and criterion 3, Protection and Reactivity Control Systems," of 10 CFR Part 50, Appendix A, "General Design Criteria for Nuclear Power Plants;" and

A review of the AP1000 DCD, VEGP COLA, the Vogtle Units 3 and 4 RWS System Specification Document, and WCAP-15985 was performed. While the RWS well water system does provide water filling and makeup to the primary and secondary fire water storage tanks. The two separate fresh water storage tanks are provided for fire protection in accordance with NFPA 22. The storage capacity of each tank is sufficient to maintain the design fire pump flow rate for at least 2 hours. Either tank can be automatically refilled from the raw water system within 8 hours. Freeze protection is provided as needed using electric immersion heaters. The results of this review demonstrate that the Raw Water System (RWS)/well water subsystem structures and components planned for installation during preconstruction are not necessary to meet fire protection requirements for the power. In addition, installation of RWS well water system structures and components planned for preconstruction do not impact the protection or reactivity control systems. Criterion not met.

(vii) Onsite emergency facilities, that is, technical support and operations support centers, necessary to comply with 10 CFR 50.47, "Emergency Plans," and 10 CFR Part 50, Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities."

A review of the AP1000 DCD, VEGP COLA including the Emergency Plan (EP), the Vogtle Units 3 and 4 RWS System Specification Document, and WCAP-15985 was performed. The RWS well water subsystem provides potable water services via the PWS and fire protection services via the YFS to the Communications Support Center building which will house the Technical Support Center or to the Operational Support Centers located in the Control Support Areas. However, construction of building services infrastructure outside of the facility footprint is not considered to be facility construction. In addition, the Emergency Plan (EP) does not credit the RWS, PWS or YFS nor does the EP Inspection, Test, Analyses, and Acceptance Criteria require testing for RWS structures and components planned for installation during preconstruction. Therefore, criterion vii is not met.

If any of the 10 CFR 50.10(a)1 screening criteria have been met, Then the installation of the structure and/or components require an LWA or COL. Proceed to Step 9.0.

9.0 Conclusion: Complete summary statement for conclusion

The Raw Water System (RWS)/well water subsystem structures and components planned for installation during preconstruction do not meet the definition of construction, and NRC approval via an LWA or COL is not required to conduct activities related to their erection.

10.0 References

10.1 AP1000 DCD, Rev. 16

10.2 VEGP 3 & 4 COLA, Rev. 0

10.3 WCAP-15985 Revision 2, "AP 1000 Implementation of the Regulatory Treatment of Nonsafety-Related Systems Process," dated August 2003

10.4 SVO-RWS-M3-001, Raw Water System (RWS) System Specification Document

10.5 SVO-RWS-M6-001, Raw Water System (RWS) System – Well Water Subsystem P&ID

10.6 SV3-RWS-M6-001, Raw Water System (RWS) System – Unit 3 River Water Subsystem P&ID

10.7 SV4-RWS-M6-001, Raw Water System (RWS) System – Unit 4 River Water Subsystem P&ID

10.8 SVO-RWS-P6-001, Raw Water System (RWS) System – Preliminary Site layout

10.9 Westinghouse Emergency Operating Procedures APP-GW-GJP-201 through APP-GW-GJP-236

11.0 Review and Approval

	Activity Performed	Name (Print and Sign)	Date
1	Preparer		
2	Engineering Review		
3	Emergency Operating Procedures Review		
4	Emergency Planning Review		
5	Security Review		
6	Licensing Review		
7	Management Approval		

Activity: Installation of Sanitary Drainage System: The primary function of the sanitary drain system (SDS) is to receive and route the sanitary waste from the plant restrooms, turbine building locker rooms, auxiliary buildings and annex buildings of Units 3 &4 in addition to the site specific facilities. Portions of this system will be installed during site preconstruction and LWA activities including the buried piping and structures.

1.0 Does the installation activity include an SSC or elements of an SSC that will be a permanent part of the operating plant

☒ **If** YES, **Then** complete Step 3.0

☐ **If** NO, **Then** complete Step 2.0

2.0 Is the activity preconstruction as defined in 10CFR50.10(a), COL/ESP-ISG-004, its supplement, and RG?

Can the activity be considered any of the following?

(a) Changes for temporary use of the land for public recreational purposes;

(b) Site exploration, including necessary borings to determine foundation conditions or other preconstruction monitoring to establish background information related to the suitability of the site, the environmental impacts of construction or operation, or the protection of environmental values;

(c) Preparation of a site for construction of a facility, including clearing of the site, grading, installation of drainage, erosion and other environmental mitigation measures, and construction of temporary roads and borrow areas;

(d) Erection of fences and other access control measures;

(e) Excavation;

(f) Erection of support buildings (such as, construction equipment storage sheds, warehouse and shop facilities, utilities, concrete mixing plants, docking and unloading facilities, and office buildings) for use in connection with the construction of the facility;

(g) Building of service facilities, such as paved roads, parking lots, railroad spurs, exterior utility and lighting systems, potable water systems, sanitary sewerage treatment facilities, and transmission lines;

(h) Procurement or fabrication of components or portions of the proposed facility occurring at other than the final, in-place location at the facility; or

(i) Manufacture of a nuclear power reactor under a manufacturing license under Subpart F, "Manufacturing Licenses," of 10 CFR Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants," to be installed at the proposed site and to be part of the proposed facility.

☐ **If** YES, **Then** complete Step 2.1

☐ **If** NO, **Then** complete Step 3.0

2.1 Is the activity taking place within the necessary excavation?

☐ **If** YES, **Then** complete Step 2.2

☐ **If** NO, **Then** activity is considered preconstruction. Complete conclusion Step 9.0.

2.2 If the activity is taking place in the necessary excavation, is the activity permanent?

☐ **If** YES, **Then** an LWA or COL is required for installation or construction of the SSCs. Complete conclusion Step 9.0.

☐ **If** NO, **Then** activity is considered preconstruction. Complete conclusion Step 9.0.

3.0 Identify the system and preconstruction structures and components (SSC).

Sanitary Drainage System

The primary function of the sanitary drain system (SDS) is to receive and route to existing manhole 9, the sanitary waste from the plant restrooms, turbine building locker rooms, auxiliary buildings and annex buildings of Units 3 &4 in addition to the site specific facilities. Site specific facilities include rest rooms, locker rooms, kitchens, drinking fountains and floor drains. From Manhole 9 the sanitary waste will join the existing site SDS and be routed to the existing sanitary treatment plant (STP) for treatment and discharge. The SDS will function using branch lines to route the sanitary waste from site facilities to a gravity or low pressure (force main) pipe line. The SDS provides sanitary facilities for the entire plant including power block that consists of the annex, turbine and auxiliary buildings, via a permanent sanitary system.

Permanent System Waste Collection

The permanent system collects sanitary waste from the entire plant site including power block that consists of the turbine, annex and auxiliary buildings, and other permanent buildings supporting the operation of Units 3 & 4. The permanent SDS consists of gravity pipe lines, low pressure lines, lift stations, pumps, valves and manholes as required to convey the sanitary waste from these facilities to Manhole 9. Height gradients within installed sanitary piping will allow gravity to be the primary force of sanitary drainage delivery. Lift stations will assist where grading and height differences must be overcome to allow proper gravitational drainage.

The In-Processing facility will utilize a low pressure sanitary system that will grind and pump the sanitary waste to a manhole in the gravity line serving the power block.

The existing site STP has sufficient capacity to process the sanitary waste for final discharge from both the existing two units and Units 3 & 4.

The Fire Training Facility (FTF) sanitary waste will be collected via the FTF interior plumbing and be routed to a septic tank by means of gravity flow.

4.0 Identify the system, structure and component (SSC) design basis.

Safety Design Basis

The sanitary drainage system serves no safety-related function and therefore has no nuclear safety

Design Basis

The sanitary drainage system within the scope of the plant covered by Design Certification is designed to accommodate 25 gallons/person/day for up to 500 persons during a 24-hour period.

The Sanitary Drainage System performs no safety-related functions. The Sanitary Drainage System performs no defense-in-depth functions. The Sanitary Drainage System does not support any other systems or support other safety-related functions.

5.0 Identify for the Preconstruction Structures and Components the Seismic Category, Equipment/ SSC Class, Function and Active Passive determination in the table below: ***Note: Refer to DCD Tables 3.2-1, 3.2-2, and 3.2-3.***

Preconstruction Component or Structure	Seismic Cat.	Equip/SSC Class	Function	Active/ Passive
One package lift station	NS	P	Provides motive force for system fluids	Active
Buried piping	NS	P	Provides flow path for system fluids	Passive
Man hole	NS	P	Provides a collection point for SDS fluids and system access	Passive

Class P – This class is used for plumbing equipment. It complies with the National Plumbing.

5.1 Determine construction uses for the SC: The Construction system will collect sanitary waste from all construction support buildings and facilities. The construction SDS consists of gravity and low pressure pipe lines, lift stations, pumps, valves and manholes as required to convey the sanitary waste from the construction site facilities to Manhole 9. A portion of the permanent piping will be installed along with necessary lift stations, pumps, valves, and manholes to support construction of both units 3 & 4. The branch lines serving the construction buildings and facilities will be capped and abandoned in place as the buildings and facilities connected to it are taken out of service.

Proceed to step 6.0 and perform a preliminary screening.

6.0 Is the system Safety Related or designed to satisfy the requirements of 10 CFR 73, 10 CFR 50.48 or Criterion 3 of 10 CFR 50 Appendix A?

☐ **If** YES, **Then** an LWA or COL is required for installation or construction of the SSCs. Complete Step 9.0, Conclusion.

☒ **If** NO, **Then** proceed to Step 7.0.

7.0 Does the System have the potential to cause a reactor scram or actuation of a safety system?

☐ **If** YES, **Then** perform an operating experience review for the preconstruction structure and components and document below.

A. Evaluate related operating experience.

B. Proceed with preconstruction screening Step 8.0.

☒ **If** NO, **Then** proceed with preconstruction screening Step 8.0.

8.0 10 CFR 50.10(a)1 Preconstruction Screening

Activities constituting construction are the driving of piles, subsurface preparation, placement of backfill, concrete or in-place assembly, erection, fabrication, or testing which are for:

(i) Safety-related structures, systems, or components of a facility, as defined in 10 CFR 50.2;

A review of the AP1000 DCD, VEGP COLA, the Vogtle Units 3 and 4 SDS System Specification Document, and WCAP-15985 was performed. This review determined that the SDS structures and components planned for installation during preconstruction are not safety-related. Criterion not met.

(ii) SSCs relied upon to mitigate accidents or transients or used in plant emergency operating procedures;

A review of the AP1000 DCD, VEGP COLA, the Vogtle Units 3 and 4 SDS System Specification Document, and WCAP-15985 was performed. This review determined that the SDS structures and components planned for installation during preconstruction are not relied upon to mitigate accidents or transients. In addition, a review of the current AP 1000 EOP revisions, referenced in section 10.0, was performed and these preconstruction items are not relied upon to meet any success criteria. Criterion not met.

(iii) SSCs whose failure could prevent safety-related SSCs from fulfilling their safety-related function;

A review of the AP1000 DCD, VEGP COLA, the Vogtle Units 3 and 4 SDS System Specification Document, and WCAP-15985 was performed. This review determined that failure of the SDS structures and components planned for installation during preconstruction will not prevent the function of a safety related structure, system or component. Criterion not met.

(iv) SSCs whose failure could cause a reactor scram or actuation of a safety-related system;

A review of the AP1000 DCD, VEGP COLA, the Vogtle Units 3 and 4 SDS System Specification Document, and WCAP-15985 was performed. This review determined that Loss of the SDS structures and components planned for installation during preconstruction will not cause a reactor scram or actuation of a safety system. Criterion not met.

(v) SSCs necessary to comply with 10 CFR Part 73, "Physical Protection of Plants and Materials;"

A review of the AP1000 DCD, VEGP COLA including the Physical Security Plan, the Vogtle Units 3 and 4 SDS System Specification Document, WCAP-15985, and the drawings identified in 10.0 below was performed. This review determined that SDS preconstruction structures and components, to include the package lift station, man hole stations, and buried piping, do not perform any function associated with physical security requirements contained in 10 CFR 73.55. Permanent design of the SDS must include appropriate physical barriers to preclude use of the system as an underground pathway to circumvent the site protected area (PA) boundary. Criterion not met.

(vi) SSCs necessary to comply with 10 CFR 50.48 "Fire Protection" and criterion 3, Protection and Reactivity Control Systems," of 10 CFR Part 50, Appendix A, "General Design Criteria for Nuclear Power Plants;" and

A review of the AP1000 DCD, VEGP COLA, the Vogtle Units 3 and 4 SDS System Specification Document, and WCAP-15985 was performed. This review determined that the SDS structures and components planned for installation during preconstruction is not necessary to meet fire protection requirements for the power plant. In addition, the changes associated with this preconstruction activity do not impact the protection or reactivity control systems. Criterion not met.

(vii) Onsite emergency facilities, that is, technical support and operations support centers, necessary to comply with 10 CFR 50.47, "Emergency Plans," and 10 CFR Part 50, Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities."

A review of the AP1000 DCD, VEGP COLA including the Emergency Plan (EP), the Vogtle Units 3 and 4 SDS System Specification Document, and WCAP-15985 was performed. This review determined that some elements of the SDS infrastructure will be used to provide sanitary drain services to the Communications Support Center building which will house the Technical Support Center or to the Operational Support Centers located in the Control Support Areas. The EP does not credit use of the SDS nor does the EP Inspection, Test, Analyses, and Acceptance Criteria address any SDS structures or components. Therefore, criterion vii is not met.

If any of the 10 CFR 50.10(a)1 screening criteria have been met, Then the installation of the structure and/or components require an LWA or COL. Proceed to Step 9.0.

9.0 Conclusion: Complete summary statement for conclusion

The Sanitary Drainage System is not included in the definition of construction, and NRC approval via an LWA or COL is not required to conduct activities related to its erection.

10.0 References

10.1 AP1000 DCD, Rev. 16

10.2 VEGP 3 & 4 COLA, Rev. 0

10.3 WCAP-15985 Revision 2, "AP 1000 Implementation of the Regulatory Treatment of Nonsafety-Related Systems Process," dated August 2003

10.4 SV0-SDS-M3-001, Site Sanitary Drainage System for Vogtle 3 & 4

10.5 SV0-SDS-M6-002, Site Sanitary Drainage System - Construction P&ID

10.6 SV0-SDS-P6-001, Site Sanitary Drainage System - Permanent Piping Layout

10.7 SV0-SDS-P6-002, Site Sanitary Drainage System - Construction Piping Layout

10.8 Westinghouse Emergency Operating Procedures APP-GW-GJP-201 through APP-GW-GJP-236

11.0 Review and Approval

	Activity Performed	Name (Print and Sign)	Date
1	Preparer		
2	Engineering Review		
3	Emergency Operating Procedures Review		
4	Emergency Planning Review		
5	Security Review		
6	Licensing Review		
7	Management Approval		

Activity: Installation of Storm Drain System: The Storm Drain System (DRS) collects and controls the accumulation of rainwater on the site. It supports construction by removing rainwater and managing runoff from the parking lots and construction areas to control erosion and limit environmental impact. Portions of this system will be installed during preconstruction and LWA activities including the grading, storm ditches, erosion control, underground piping, and culverts.

1.0 Does the installation activity include an SSC or elements of an SSC that will be a permanent part of the operating plant

☒ **If** YES, **Then** complete Step 3.0

☐ **If** NO, **Then** complete Step 2.0

2.0 Is the activity preconstruction as defined in 10CFR50.10(a), COL/ESP-ISG-004, its supplement, and RG?

Can the activity be considered any of the following?

(a) Changes for temporary use of the land for public recreational purposes;

(b) Site exploration, including necessary borings to determine foundation conditions or other preconstruction monitoring to establish background information related to the suitability of the site, the environmental impacts of construction or operation, or the protection of environmental values;

(c) Preparation of a site for construction of a facility, including clearing of the site, grading, installation of drainage, erosion and other environmental mitigation measures, and construction of temporary roads and borrow areas;

(d) Erection of fences and other access control measures;

(e) Excavation;

(f) Erection of support buildings (such as, construction equipment storage sheds, warehouse and shop facilities, utilities, concrete mixing plants, docking and unloading facilities, and office buildings) for use in connection with the construction of the facility;

(g) Building of service facilities, such as paved roads, parking lots, railroad spurs, exterior utility and lighting systems, potable water systems, sanitary sewerage treatment facilities, and transmission lines;

(h) Procurement or fabrication of components or portions of the proposed facility occurring at other than the final, in-place location at the facility; or

(i) Manufacture of a nuclear power reactor under a manufacturing license under Subpart F, "Manufacturing Licenses," of 10 CFR Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants," to be installed at the proposed site and to be part of the proposed facility.

☐ **If** YES, **Then** complete Step 2.1

☐ **If** NO, **Then** complete Step 3.0

2.1 Is the activity taking place within the necessary excavation?

☐ **If** YES, **Then** complete Step 2.2

☐ **If** NO, **Then** activity is considered preconstruction. Complete conclusion Step 9.0.

2.2 If the activity is taking place in the necessary excavation, is the activity permanent?

☐ **If** YES, **Then** an LWA or COL is required for installation or construction of the SSCs. Complete conclusion Step 9.0.

☐ **If** NO, **Then** activity is considered preconstruction. Complete conclusion Step 9.0.

3.0 Identify the system and preconstruction structures and components (SSC).

Storm Drain System (DRS)

The Storm Drain System (DRS) collects and controls the accumulation of rainwater on the site. It supports construction by removing rainwater and managing runoff from the parking lots and construction areas to control erosion and limit environmental impact. The DRS also supports plant operation in the same manner. The DRS inside and outside of the power block area includes: the grading of the area to produce desired slopes and contours, installation of drainage ditches, installation of culverts and underground piping along with other related items including erosion control countermeasures.

Subsystem: DRS Storm Drains Installation (Inside and Outside of Power Block)

The storm drain system subsystem located on the inside and outside of the power block will function in the same manner as the main DRS as described above.

4.0 Identify the system, structure and component (SSC) design basis.

Safety Design Basis

The storm drainage system serves no safety-related function and therefore has no nuclear safety design basis.

Design Basis

The storm drains are installed to provide rainwater runoff control for the site. This system will be used during construction as well as in plant operation. The storm drains in the power block area are to function in the same manner as the main DRS for the power block area. The power block area is graded to direct runoff east and west to three north-south ditches which will outfall to the concrete-lined main ditch, running east and west for ~2,000 feet along the south side of the power block. The trapezoidal ditch cross section has a ~10-foot bottom width with 2:1 side slopes, sized to provide adequate conveyance for probable maximum precipitation (PMP) discharges. At the southwest corner of the power block, the main ditch turns due south, and the bottom width is increased to 14 feet. From the west, it intercepts runoff from the construction lay down area; from the east it intercepts discharge from three ditches draining the cooling tower block. The local PMP event was modeled in HEC-HMS, which is an industry standard program for this application using SCS Hydrograph Methodology. An assumption made in the modeling was 100% blockage of drainage ditches as a worst case scenario. As all safety-related facilities have entry elevations at or above 220 ft msl, it has been determined that the maximum local PMP flood elevation is at least 0.55 ft below any entry to any safety related facility, and the flooding of safety-related facilities due to this PMP event does not occur. In summary, the main ditch system has been designed to convey the peak discharge of the PMP flood event safely offsite. In addition, site grading is sufficiently sloped to convey runoff overland from the local PMP event away from all buildings and safety-related equipment, without flooding. This analysis, demonstrates that the Storm Drain System is not relied upon to perform any safety related functions, and thus does not have a reasonable nexus to the radiological health and safety of the public or the common defense and security within the meaning of the LWA rule.

5.0 Identify for the Preconstruction Structures and Components the Seismic Category, Equipment/ SSC Class, Function and Active Passive determination in the table below: ***Note: Refer to DCD Tables 3.2-1, 3.2-2, and 3.2-3.***

Preconstruction Component or Structure	Seismic Cat.	Equip/SSC Class	Function	Active/ Passive
Grading of area	NS	E	To help with the control of runoff water	Passive
Excavation and development of storm ditches	NS	E	To carry water away from construction site	Passive
Culverts	NS	E	To carry water away from construction site	Passive
Underground piping	NS	E	A flow path of excess storm water	Passive
Erosion control countermeasures	NS	E	Measures taken to prevent erosion	Passive

Class E – These classes are used for nonsafety-related structures, systems, and components that do not have a specialized industry standard or classification.

5.1 Determine construction uses for the SC: None

Proceed to step 6.0 and perform a preliminary screening.

6.0 Is the system Safety Related or designed to satisfy the requirements of 10 CFR 73, 10 CFR 50.48 or Criterion 3 of 10 CFR 50 Appendix A?

☐ **If** YES, **Then** an LWA or COL is required for installation or construction of the SSCs. Complete Step 9.0, Conclusion.

☒ **If** NO, **Then** proceed to Step 7.0.

7.0 Does the System have the potential to cause a reactor scram or actuation of a safety system?

☐ **If** YES, **Then** perform an operating experience review for the preconstruction structure and components and document below.

A. Evaluate related operating experience.

B. Proceed with preconstruction screening Step 8.0.

☒ **If** NO, **Then** proceed with preconstruction screening Step 8.0.

8.0 10 CFR 50.10(a)1 Preconstruction Screening

Activities constituting construction are the driving of piles, subsurface preparation, placement of backfill, concrete or in-place assembly, erection, fabrication, or testing which are for:

(i) Safety-related structures, systems, or components of a facility, as defined in 10 CFR 50.2;

A review of the AP1000 DCD, VEGP COLA, Storm Drain System (DRS) System Specification Document, and WCAP-15985 was performed. DRS/Subsystems design and safety design basis is summarized above. This review determined that the Vogtle DRS/Subsystems are not safety-related. Criterion not met.

(ii) SSCs relied upon to mitigate accidents or transients or used in plant emergency operating procedures;

A review of the AP1000 DCD, VEGP COLA, Storm Drain System (DRS) System Specification Document, and WCAP-15985 was performed. DRS/Subsystems design and safety design basis is summarized above. This review determined that the Vogtle DRS/Subsystems are not relied upon to mitigate accidents or transients. In addition, a review of the current AP 1000 EOP revisions, referenced in section 10.0, was performed and these preconstruction items are not relied upon to meet any success criteria. Criterion not met.

(iii) SSCs whose failure could prevent safety-related SSCs from fulfilling their safety-related function;

A review of the AP1000 DCD, VEGP COLA, Storm Drain System (DRS) System Specification Document, and WCAP-15985 was performed. DRS/Subsystems design and safety design basis is summarized above. This review determined the Vogtle DRS/Subsystems will not prevent the function of a safety related structure, system or component. Criterion not met.

(iv) SSCs whose failure could cause a reactor scram or actuation of a safety-related system;

A review of the AP1000 DCD, VEGP COLA, Storm Drain System (DRS) System Specification Document, and WCAP-15985 was performed. DRS/Subsystems design and safety design basis is summarized above. This review determined that the loss of the Vogtle DRS/Subsystems will not cause a reactor scram or actuation of a safety system. Criterion not met.

(v) SSCs necessary to comply with 10 CFR Part 73, "Physical Protection of Plants and Materials;"

A review of the AP1000 DCD, VEGP COLA including the Physical Security Plan, the Vogtle Units 3 and 4 RWS System Specification Document, WCAP-15985 and the drawings identified in 10.0 below was performed. , The review determined that the DRS preconstruction structures and components, to include the buried piping, ditches, and culverts, do not perform any function associated with physical security requirements contained in 10 CFR 73.55. Permanent design of the DRS must include appropriate physical barriers to preclude use of the system as an underground pathway to circumvent the site protected area (PA) boundary. Criterion not met.

(vi) SSCs necessary to comply with 10 CFR 50.48 "Fire Protection" and criterion 3, Protection and Reactivity Control Systems," of 10 CFR Part 50, Appendix A, "General Design Criteria for Nuclear Power Plants;" and

A review of the AP1000 DCD, VEGP COLA, Storm Drain System (DRS) System Specification Document, and WCAP-15985 was performed. DRS/Subsystems design and safety design basis is summarized above. This review determined that the Vogtle DRS/Subsystems are not necessary to meet fire protection requirements for the power plant or for protection and reactivity control systems function. Criterion not met.

(vii) Onsite emergency facilities, that is, technical support and operations support centers, necessary to comply with 10 CFR 50.47, "Emergency Plans," and 10 CFR Part 50, Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities."

A review of the AP1000 DCD, VEGP COLA including the Emergency Plan, Storm Drain System (DRS) System Specification Document, and WCAP-15985 was performed. DRS/Subsystems design and safety design basis is summarized above. This review determined that the DRS is credited in the EP nor any DRS SSCs addressed by any EP Inspection, Test, Analyses, and Acceptance Criteria. Therefore, criterion vii is not met.

If any of the 10 CFR 50.10(a)1 screening criteria have been met, Then the installation of the structure and/or components require an LWA or COL. Proceed to Step 9.0.

9.0 Conclusion: Complete summary statement for conclusion

The Vogtle DRS/Subsystems are not included in the definition of construction, and NRC approval via an LWA or COL is not required to conduct activities related to their erection.

10.0 References

10.1 AP1000 DCD, Rev. 16

10.2 VEGP 3 & 4 COLA, Rev. 0

10.3 WCAP-15985 Revision 2, "AP 1000 Implementation of the Regulatory Treatment of Nonsafety-Related Systems Process," dated August 2003

10.4 SV0-DRS-M3-001, Storm Drain System (DRS) – System Specification Document

10.5 SV0-G100-XD-001, Storm Drain System (DRS) – Conceptual Flow Diagram Sketch

10.6 Westinghouse Emergency Operating Procedures APP-GW-GJP-201 through APP-GW-GJP-236

11.0 Review and Approval

	Activity Performed	Name (Print and Sign)	Date
1	Preparer		
2	Engineering Review		
3	Emergency Operating Procedures Review		
4	Emergency Planning Review		
5	Security Review		
6	Licensing Review		
7	Management Approval		

Activity: Installation of Waste Water System: The Waste Water System (WWS) performs several functions including collection of drainage of non-radioactive conventional industrial waste from numerous sources throughout the AP1000 complex. It also directs fire fighting water flow from several key areas within and outside the Turbine Building. The Retention Basins (WWRB) provides a holdup volume to allow particulate settling to occur prior to discharge, as well as a potential neutralization volume for chemical treatment. Portions of this system will be installed during site preconstruction and LWA activities including buried piping, retention basins, blow down line and discharge structure, buried electrical and I&C duct banks, support structure, discharge piping and sump, and pumps, valves and piping.

1.0 Does the installation activity include an SSC or elements of an SSC that will be a permanent part of the operating plant

☒ **If** YES, **Then** complete Step 3.0

☐ **If** NO, **Then** complete Step 2.0

2.0 Is the activity preconstruction as defined in 10CFR50.10(a), COL/ESP-ISG-004, its supplement, and RG?

Can the activity be considered any of the following?

(a) Changes for temporary use of the land for public recreational purposes;

(b) Site exploration, including necessary borings to determine foundation conditions or other preconstruction monitoring to establish background information related to the suitability of the site, the environmental impacts of construction or operation, or the protection of environmental values;

(c) Preparation of a site for construction of a facility, including clearing of the site, grading, installation of drainage, erosion and other environmental mitigation measures, and construction of temporary roads and borrow areas;

(d) Erection of fences and other access control measures;

(e) Excavation;

(f) Erection of support buildings (such as, construction equipment storage sheds, warehouse and shop facilities, utilities, concrete mixing plants, docking and unloading facilities, and office buildings) for use in connection with the construction of the facility;

(g) Building of service facilities, such as paved roads, parking lots, railroad spurs, exterior utility and lighting systems, potable water systems, sanitary sewerage treatment facilities, and transmission lines;

(h) Procurement or fabrication of components or portions of the proposed facility occurring at other than the final, in-place location at the facility; or

(i) Manufacture of a nuclear power reactor under a manufacturing license under Subpart F, "Manufacturing Licenses," of 10 CFR Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants," to be installed at the proposed site and to be part of the proposed facility.

☐ **If** YES, **Then** complete Step 2.1

☐ **If** NO, **Then** complete Step 3.0

2.1 Is the activity taking place within the necessary excavation?

☐ **If** YES, **Then** complete Step 2.2

☐ **If** NO, **Then** activity is considered preconstruction. Complete conclusion Step 9.0.

2.2 If the activity is taking place in the necessary excavation, is the activity permanent?

☐ **If** YES, **Then** an LWA or COL is required for installation or construction of the SSCs. Complete conclusion Step 9.0.

☐ **If** NO, **Then** activity is considered preconstruction. Complete conclusion Step 9.0.

3.0 Identify the system and preconstruction structures and components (SSC).

Waste Water System (WWS)

The Waste Water System (WWS) performs several functions including collection of drainage of non-radioactive conventional industrial waste from numerous sources throughout the AP1000 complex. It also directs fire fighting water flow from several key areas within and outside the Turbine Building. The Retention Basins (WWRB) provides a holdup volume to allow particulate settling to occur prior to discharge, as well as a potential neutralization volume for chemical treatment. The pumps and piping direct flow to the ultimate outfall point of the system, the WWS Blowdown Sump.

The WWS includes a collection of sumps that discharge to the turbine building sumps for processing and release. It also includes turbine building sump pumps, an oil separator, the waste oil storage tank, the waste water retention basin, the blow down sump, connecting piping pumps and valves, and the discharge pipe, sump, and structure into the Savannah River. The WWS stops the discharge from the turbine building sump upon detection of high radiation in the discharge stream to the oil separator.

The WWS does not perform or support any safety-related functions. The WWS does not perform or support any defense-in-depth function.

Discharge Structure

The outfall portion of the Waste Water System (WWS) discharge line connects with the Liquid Radwaste System (WLS) discharge line at a point near the Savannah River outfall structure. There are design features in place to prevent intrusion of the radioactive liquid back into the Waste Water System piping (predominantly a large amount of gravity flow), but it may be physically possible for some contamination to enter the lower end of the piping during periods when the system is out of service To prevent this, procedural controls will be in place, similar to those used at operating nuclear power plants.

Waste Water Discharge Radiation Monitor

The waste water discharge radiation monitor (WWS-JE-RE021) measures the concentration of radioactive materials in the discharge from the waste water system. The waste water discharge radiation monitor provides data for reports of liquid releases of radioactive materials in accordance with Regulatory Guide 1.21.

The waste water discharge radiation monitor is an offline monitor. It stops the turbine building sump pumps and the basin transfer pumps and initiates an alarm in the main control room if the concentration of radioactive materials exceeds a predetermined set point. Following an alarm, the operator can manually realign the discharge to the liquid radwaste system for processing. For process system details refer to Subsection 9.2.9.

4.0 Identify the system, structure and component (SSC) design basis.

Safety Design Basis

The waste water system serves no safety-related function and therefore has no safety-related design basis.

Power Generation Design Basis

The waste water system collects and processes equipment and floor drains from nonradioactive building areas and is capable of handling the anticipated flow of waste water during normal plant operation and during plant outages. The waste water system:

- Removes oil and/or suspended solids from miscellaneous waste streams generated from the plant.
- Collects system flushing wastes during startup prior to treatment and discharge.
- Collects and processes fluid drained from equipment or systems during maintenance or inspection activities.

Directs nonradioactive equipment and floor drains which may contain oily waste to the building sumps and transfers their contents for proper waste disposal.

5.0 Identify for the Preconstruction Structures and Components the Seismic Category, Equipment/ SSC Class, Function and Active Passive determination in the table below:
Note: Refer to DCD Tables 3.2-1, 3.2-2, and 3.2-3.

Preconstruction Component or Structure	Seismic Cat.	Equip/SSC Class	Function	Active/ Passive
WWS retention basin(s)	NS	E	Provides for WWS storage.	Passive
Buried WWS piping between Turbine building, WWSRB, WWS blowdown sump and the Savannah River discharge structure	NS	E	Flow path for system fluids.	Passive
WWS blowdown sump	NS	E	Provides a collection mixing location for system fluids.	Passive
WWS blow down line and discharge structure	NS	E	Flow path for system fluids.	Passive
Buried WWS electrical / I&C duct banks	NS	E	Provides housing for power and instrument cables.	Passive
WWS pumps	NS	E	Provides motive force for system fluids.	Active

Preconstruction Component or Structure	Seismic Cat.	Equip/SSC Class	Function	Active/ Passive
WWS valves	NS	E	Provide flow control and isolation functions.	Active
Piping	NS	E	Provide flow path for discharge to river.	Passive
Support structure	NS	E	Provides structural support for discharge piping.	Passive

Class E – These classes are used for nonsafety-related structures, systems, and components that do not have a specialized industry standard or classification.

5.1 Determine construction uses for the SC: None

Proceed to step 6.0 and perform a preliminary screening.

6.0 Is the system Safety Related or designed to satisfy the requirements of 10 CFR 73, 10 CFR 50.48 or Criterion 3 of 10 CFR 50 Appendix A?

☐ **If** YES, **Then** an LWA or COL is required for installation or construction of the SSCs. Complete Step 9.0, Conclusion.

☒ **If** NO, **Then** proceed to Step 7.0.

7.0 Does the System have the potential to cause a reactor scram or actuation of a safety system?

☐ **If** YES, **Then** perform an operating experience review for the preconstruction structure and components and document below.

A. Evaluate related operating experience.

B. Proceed with preconstruction screening Step 8.0.

☒ **If** NO, **Then** proceed with preconstruction screening Step 8.0.

8.0 10 CFR 50.10(a)1 Preconstruction Screening

Activities constituting construction are the driving of piles, subsurface preparation, placement of backfill, concrete or in-place assembly, erection, fabrication, or testing which are for:

(i) Safety-related structures, systems, or components of a facility, as defined in 10 CFR 50.2;

A review of the AP1000 DCD, VEGP COLA, the Vogtle Units 3 and 4 WWS System Specification Document, and WCAP-15985 was performed. This review determined that

the Vogtle WWS retention basins, blow down sump, discharge structure, pumps, valves, and piping are not safety-related. Criterion not met.

(ii) SSCs relied upon to mitigate accidents or transients or used in plant emergency operating procedures;

A review of the AP1000 DCD, VEGP COLA, the Vogtle Units 3 and 4 WWS System Specification Document, and WCAP-15985 was performed. This review determined that the Vogtle WWS retention basins, blow down sump, discharge structure, pumps, valves, and piping are not relied upon to mitigate accidents or transients. In addition, a review of the current AP 1000 EOP revisions, referenced in section 10.0, was performed and these preconstruction items are not relied upon to meet any success criteria. Criterion not met.

(iii) SSCs whose failure could prevent safety-related SSCs from fulfilling their safety-related function;

A review of the AP1000 DCD, VEGP COLA, the Vogtle Units 3 and 4 WWS System Specification Document, and WCAP-15985 was performed. This review determined that the Vogtle WWS retention basins, blow down sump, discharge structure, pumps, valves, and piping will not prevent the function of a safety related structure, system or component. Criterion not met.

(iv) SSCs whose failure could cause a reactor scram or actuation of a safety-related system;

A review of the AP1000 DCD, VEGP COLA, the Vogtle Units 3 and 4 WWS System Specification Document, and WCAP-15985 was performed. This review determined that the loss of the Vogtle WWS retention basins, blow down sump, discharge structure, pumps, valves, and piping will not directly cause a reactor scram or actuation of a safety system. Criterion not met.

(v) SSCs necessary to comply with 10 CFR Part 73, "Physical Protection of Plants and Materials;"

A review of the AP1000 DCD, VEGP COLA including the Physical Security Plan, the Vogtle Units 3 and 4 WWS System Specification Document, WCAP-15985, and the drawings identified in 10.0 below was performed. This review determined that WWS preconstruction structures and components, to include WWS retention basins, blow down sump, discharge structure, pumps, valves, and piping, do not perform any function associated with physical security requirements contained in 10 CFR 73.55. Permanent design of the WWS must include appropriate physical barriers to preclude use of the system as an underground pathway to circumvent the site protected area (PA) boundary. Criterion not met.

(vi) SSCs necessary to comply with 10 CFR 50.48 "Fire Protection" and criterion 3, Protection and Reactivity Control Systems," of 10 CFR Part 50, Appendix A, "General Design Criteria for Nuclear Power Plants;" and

A review of the AP1000 DCD, VEGP COLA, the Vogtle Units 3 and 4 WWS System Specification Document, and WCAP-15985 was performed. This review determined that the Vogtle WWS retention basins, blow down sump, discharge structure, pumps, valves, and piping are not necessary to meet fire protection requirements for the power plant or for protection and reactivity control systems function. Criterion not met.

(vii) Onsite emergency facilities, that is, technical support and operations support centers, necessary to comply with 10 CFR 50.47, "Emergency Plans," and 10 CFR Part 50, Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities."

A review of the AP1000 DCD, VEGP COLA including the Emergency Plan, the Vogtle Units 3 and 4 WWS System Specification Document, and WCAP-15985 was performed. This review determined that no elements of the WWS retention basins, blow down sump, discharge structure, pumps, valves, and piping will be used to provide waste water services to the Communications Support Center building which will house the Technical Support Center or to the Operational Support Centers located in the Control Support Areas. Therefore, criterion is not met.

If any of the 10 CFR 50.10(a)1 screening criteria have been met, Then the installation of the structure and/or components require an LWA or COL. Proceed to Step 9.0.

9.0 Conclusion: Complete summary statement for conclusion

The evaluation above of the AP1000 DCD and VEGP COLA application WWS design and safety design basis and 10 CFR 50.10(a)1 screening demonstrates that the Vogtle WWS retention basins, blow down sump, discharge structure, pumps, valves, piping and the discharge pipe and structure piping are not included in the definition of construction, and NRC approval via an LWA or COL is not required to conduct activities related to their erection

10.0 References

10.1 AP1000 DCD, Rev. 16

10.2 VEGP 3 & 4 COLA, Rev. 0

10.3 WCAP-15985 Revision 2, "AP 1000 Implementation of the Regulatory Treatment of Nonsafety-Related Systems Process," dated August 2003

10.4 SVO-WWS-M3-001, Vogtle Electric Generating Plant Units 3 & 4 Site Specific Waste Water System (WWS) System Specification Document

10.5 SV3-WWS-M6-001, Waste Water System (WWS) – Unit 3 P&ID

10.6 SV4-WWS-M6-001, Waste Water System (WWS) – Unit 4 P&ID

10.7 SV0-WWS-P6-001, Waste Water System (WWS) – Piping Layout

10.8 Westinghouse Emergency Operating Procedures APP-GW-GJP-201 through APP-GW-GJP-236

11.0 Review and Approval

	Activity Performed	Name (Print and Sign)	Date
1	Preparer		
2	Engineering Review		
3	Emergency Operating Procedures Review		
4	Emergency Planning Review		
5	Security Review		
6	Licensing Review		
7	Management Approval		

Activity: Installation of YFS: The Yard Fire Protection System (YFS) provides fire protection capability for all non-AP1000 buildings and structures. Portions of this system will be installed during site preconstruction and LWA activities including the water storage tank, motor driven fire pump, diesel driven fire pump, jockey pump, valves, diesel storage tank, fire hydrants, buried piping, hose stations, stand pipes, fire suppression systems, fire detection systems, buried duct banks, and instruments and controls.

1.0 Does the installation activity include an SSC or elements of an SSC that will be a permanent part of the operating plant

☒ **If** YES, **Then** complete Step 3.0

☐ **If** NO, **Then** complete Step 2.0

2.0 Is the activity preconstruction as defined in 10CFR50.10(a), COL/ESP-ISG-004, its supplement, and RG?

Can the activity be considered any of the following?

(a) Changes for temporary use of the land for public recreational purposes;

(b) Site exploration, including necessary borings to determine foundation conditions or other preconstruction monitoring to establish background information related to the suitability of the site, the environmental impacts of construction or operation, or the protection of environmental values;

(c) Preparation of a site for construction of a facility, including clearing of the site, grading, installation of drainage, erosion and other environmental mitigation measures, and construction of temporary roads and borrow areas;

(d) Erection of fences and other access control measures;

(e) Excavation;

(f) Erection of support buildings (such as, construction equipment storage sheds, warehouse and shop facilities, utilities, concrete mixing plants, docking and unloading facilities, and office buildings) for use in connection with the construction of the facility;

(g) Building of service facilities, such as paved roads, parking lots, railroad spurs, exterior utility and lighting systems, potable water systems, sanitary sewerage treatment facilities, and transmission lines;

(h) Procurement or fabrication of components or portions of the proposed facility occurring at other than the final, in-place location at the facility; or

(i) Manufacture of a nuclear power reactor under a manufacturing license under Subpart F, "Manufacturing Licenses," of 10 CFR Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants," to be installed at the proposed site and to be part of the proposed facility.

☐ **If** YES, **Then** complete Step 2.1

☐ **If** NO, **Then** complete Step 3.0

2.1 Is the activity taking place within the necessary excavation?

☐ **If** YES, **Then** complete Step 2.2

☐ **If** NO, **Then** activity is considered preconstruction. Complete conclusion Step 9.0.

2.2 If the activity is taking place in the necessary excavation, is the activity permanent?

☐ **If** YES, **Then** an LWA or COL is required for installation or construction of the SSCs. Complete conclusion Step 9.0.

☐ **If** NO, **Then** activity is considered preconstruction. Complete conclusion Step 9.0.

3.0 Identify the system and preconstruction structures and components (SSC).

Yard Fire Protection System

The Yard Fire Protection System (YFS) provides fire protection capability for all non-AP1000 buildings and structures. The Yard Fire Protection System supplies water to hydrants near the Circulating Water Pump House, which is pre-construction and the switchyard. YFS is expected to supply suppression for the Circulating Water and Raw Water Pump House Facilities, the switchyard and relay house, permanent administration building, communications support center (including TSC and CAS), and other permanent facilities as well as the construction facilities. Because permanent facilities will be provided water by YFS, this configuration must be accepted by the Nuclear Electric Insurance Limited (NEIL) prior to final design.

The fire water supply system includes the fire service water storage tanks, pumps, piping, valves and other components needed to deliver water to fire hydrants, standpipes, and fire suppression systems. The automatic fire suppression systems include the piping, valves, sprinklers and other components which provide automatic fire suppression for specific plant areas. The manual fire suppression systems include fire hydrants, standpipes and hose stations, and portable fire extinguishers.

YFS consists of two fire water pumps, one electric-motor driven and one diesel-engine driven and two fire water storage tanks. In addition, an electric-motor driven jockey pump is provided in order to maintain a pressurized YFS. In order to support construction of Units 3 & 4, a single fire water storage tank, a diesel-engine fire pump and a jockey pump will be installed.

The YFS loop will consist of a number of subsystems, referred to as systems, for fire detection and alarm, fire water supply, and automatic and manual fire suppression. The fire detection and alarm system includes the instrumentation and controls required for detecting and identifying the location of a fire, providing alarms, monitoring YFS status, and actuating automatic fire suppression systems. The fire water supply system is designed in accordance with the applicable requirements of NFPA 20, NFPA 22, NFPA 24 and NEIL requirements. The tank will contain a sufficient volume of water to supply the maximum expected water demand for two hours, 240,000 usable gallons minimum. To minimize the number of system components, a 100 percent capacity diesel-engine driven fire pump, UL Listed/ FM Approved, including associated controller are provided. Each pump has enough capacity to supply the maximum automatic sprinkler system demand of 1500 GPM (nominal estimated value) per NFPA 13, with simultaneous flow of 500 GPM for hose streams and with the yard main hydraulic short leg-path out of service (Reference 12.1.1). The ring header for the YFS Loop will consist of 14 inch Hose Operated Pumping Equipment (HOPE), with standard NFPA 24 Hose Connections.

The YFS portion for service to the construction facilities will be abandoned in place after the construction of Units 3 and 4 is complete.

4.0 Identify the system, structure and component (SSC) design basis.

Design Basis

The Yard Fire Protection System does not perform any safety related functions, and thus does not have a reasonable nexus to the radiological health and safety of the public or the common defense and security within the meaning of the LWA rule.

The YFS will supply fire protection capability to the Communication Support Center (CSC) which houses the Technical Support Center (TSC) and the Central Alarm Station (CAS).

The YFS does not have any Defense-in-Depth functions and does not support the operation of any defense-in-depth equipment or systems.

None of the Yard Fire Protection System is relied upon for mitigation of accidents nor is it used in the emergency operating procedures.

5.0 Identify for the Preconstruction Structures and Components the Seismic Category, Equipment/ SSC Class, Function and Active Passive determination in the table below: ***Note: Refer to DCD Tables 3.2-1, 3.2-2, and 3.2-3.***

Preconstruction Component or Structure	Seismic Cat.	Equip/SSC Class	Function	Active/ Passive
Water Storage Tank	NS	G	Provide a place for storage of system fluid	Passive
Motor Driven Fire Pump	NS	G	Provide motive force for system fluids.	Active
Diesel Driven Fire Pump	NS	G	Provide motive force for system fluids.	Active
Jockey Pump	NS	G	Provides pressurization for system.	Active
Valves	NS	G	Provide flow control and isolation functions.	Active
Diesel Storage Tank	NS	G	Provide a place for storage of system fluid	Passive
Fire Hydrants	NS	G	Provide connections to system fluids	Passive
Buried Piping	NS	G	Provide a flow path for system fluid	Passive
Hose Stations	NS	G	Provides a place for storage of hoses	Passive
Stand Pipes	NS	G	Provide connections to system fluids	Passive
Fire Suppression Systems	NS	G	Provide automatic and manual fire suppression for specific plant areas	Active
Fire Detection Systems	NS	G	Provides detection services for system	Active

Preconstruction Component or Structure	Seismic Cat.	Equip/SSC Class	Function	Active/ Passive
Buried Duct Banks	NS	G	Housing for power and I&C cables.	Passive
Instruments and Controls	NS	G	Provides detection and identification of the location of a fire; actuates automatic fire suppression systems	Active

Class F and G These classes are used for Fire Protection Systems. They comply with National Fire Protection Association Codes which invoke ANSI B31.1 (Reference 5), AWWA (American Water Works Association), API (American Petroleum Institute), Underwriters Laboratories (UL), and other codes, depending on service. See DCD subsection 9.5.1 for quality assurance requirements for fire protection structures, systems, and components. Portions of fire protection systems that protect safety-related SSCs are designated as AP1000 equipment Class F, which meets the requirements of ANSI B31-1 and requires seismic analysis.

5.1 Determine construction uses for the SC: The yard fire protection system will provide fire protection capability for the construction support facilities during construction.

Proceed to step 6.0 and perform a preliminary screening.

6.0 Is the system Safety Related or designed to satisfy the requirements of 10 CFR 73, 10 CFR 50.48 or Criterion 3 of 10 CFR 50 Appendix A?

☐ **If** YES, **Then** an LWA or COL is required for installation or construction of the SSCs. Complete Step 9.0, Conclusion.

☒ **If** NO, **Then** proceed to Step 7.0.

7.0 Does the System have the potential to cause a reactor scram or actuation of a safety system?

☐ **If** YES, **Then** perform an operating experience review for the preconstruction structure and components and document below.

A. Evaluate related operating experience.

B. Proceed with preconstruction screening Step 8.0.

☒ **If** NO, **Then** proceed with preconstruction screening Step 8.0.

8.0 10 CFR 50.10(a)1 Preconstruction Screening

Activities constituting construction are the driving of piles, subsurface preparation, placement of backfill, concrete or in-place assembly, erection, fabrication, or testing which are for:

(i) Safety-related structures, systems, or components of a facility, as defined in 10 CFR 50.2;

A review of the AP1000 DCD, VEGP COLA, the Vogtle Units 3 and 4 YFS System Specification Document, and WCAP-15985 was performed. This review determined that the Yard Fire Protection System provides fire protection services to Non-AP1000 structures and is not safety-related. Criterion not met.

(ii) SSCs relied upon to mitigate accidents or transients or used in plant emergency operating procedures;

A review of the AP1000 DCD, VEGP COLA, the Vogtle Units 3 and 4 YFS System Specification Document, and WCAP-15985 was performed. This review determined that the Yard Fire Protection System provides fire protection services to Non-AP1000 structures and is not relied upon to mitigate accidents or transients. In addition, a review of the current AP 1000 EOP revisions, referenced in section 10.0, was performed and these preconstruction items are not relied upon to meet any success criteria. Criterion not met.

(iii) SSCs whose failure could prevent safety-related SSCs from fulfilling their safety-related function;

A review of the AP1000 DCD, VEGP COLA, the Vogtle Units 3 and 4 YFS System Specification Document, and WCAP-15985 was performed. This review determined that the Yard Fire Protection System provides fire protection services to Non-AP1000 structures and will not prevent the function of a safety related structure, system or component. Criterion not met.

(iv) SSCs whose failure could cause a reactor scram or actuation of a safety-related system;

A review of the AP1000 DCD, VEGP COLA, the Vogtle Units 3 and 4 YFS System Specification Document, and WCAP-15985 was performed. This review determined that the Yard Fire Protection System provides fire protection services to Non-AP1000 structures and its loss will not cause a reactor scram or actuation of a safety system. Criterion not met.

(v) SSCs necessary to comply with 10 CFR Part 73, "Physical Protection of Plants and Materials;"

A review of the AP1000 DCD, VEGP COLA including the Physical Security Plan and the Vogtle Units 3 and 4 Yard Fire Water System (YFS) System Specification Document, WCAP-15985, and the drawings identified in 10.0 below was performed. This review determined that YFS preconstruction structures and components, to include the storage tank, buried piping, pumps, and valves, do not perform any function associated with physical security requirements contained in 10 CFR 73.55. Permanent design of the YFS must include appropriate physical barriers to preclude use of the system as an underground pathway to circumvent the site protected area (PA) boundary. Criterion not met.

(vi) SSCs necessary to comply with 10 CFR 50.48 "Fire Protection" and criterion 3, Protection and Reactivity Control Systems," of 10 CFR Part 50, Appendix A, "General Design Criteria for Nuclear Power Plants;" and

A review of the AP1000 DCD, VEGP COLA, the Vogtle Units 3 and 4 YFS System Specification Document, and WCAP-15985 was performed. This review determined that the Yard Fire Protection System provides fire protection services to Non-AP1000 structures such as the outside buildings and remote outlying system/structures and is not necessary to meet fire protection requirements for the AP1000 power plant. In addition, the changes associated with this preconstruction activity do not impact the protection or reactivity control systems. Criterion not met.

(vii) Onsite emergency facilities, that is, technical support and operations support centers, necessary to comply with 10 CFR 50.47, "Emergency Plans," and 10 CFR Part 50, Appendix E, "Emergency Planning and Preparedness for Production and Utilization Facilities."

A review of the AP1000 DCD, VEGP COLA including Emergency Plan (EP), the Vogtle Units 3 and 4 YFS System Specification Document, and WCAP-15985 was performed. This review determined that some elements of the YFS infrastructure will be used to provide fire protection services during operations to the Communications Support Center building which will house the Technical Support Center. However, construction of building services infrastructure outside of the facility footprint is not considered to be facility construction. In addition, the Emergency Plan (EP) does not credit fire protection for TSC nor does the EP Inspection, Test, Analyses, and Acceptance Criteria require testing for TSC fire protection features. Therefore, criterion vii is not met.

If any of the 10 CFR 50.10(a)1 screening criteria have been met, Then the installation of the structure and/or components require an LWA or COL. Proceed to Step 9.0.

9.0 Conclusion: Complete summary statement for conclusion

The Yard Fire Protection System is not included in the definition of construction, and NRC approval via an LWA or COL is not required to conduct activities related to its erection.

10.0 References

10.1 AP1000 DCD, Rev. 16

10.2 VEGP 3 & 4 COLA, Rev. 0

10.3 WCAP-15985 Revision 2, "AP 1000 Implementation of the Regulatory Treatment of Nonsafety-Related Systems Process," dated August 2003

10.4 SVO-YFS-M3-001, Vogtle Units 3 and 4 Yard Fire Water System (YFS) System Specification

10.5 SV0-YFS-M6-001, Yard Fire Water System (YFS) – Permanent P&ID

10.6 SV0-YFS-M6-002, Yard Fire Water System (YFS) – Permanent P&ID

10.7 SV0-YFS-P6-001, Yard Fire Water System (YFS) – Permanent Layout

10.8 SV0-YFS-P6-002, Yard Fire Water System (YFS) – Construction Layout

10.9 Vogtle Electric Generating Plant Units 3 and 4 COL Application Physical Security Plan

10.10 Westinghouse Emergency Operating Procedures APP-GW-GJP-201 through APP-GW-GJP-236

11.0 Review and Approval

	Activity Performed	Name (Print and Sign)	Date
1	Preparer		
2	Engineering Review		
3	Emergency Operating Procedures Review		
4	Emergency Planning Review		
5	Security Review		
6	Licensing Review		
7	Management Approval		